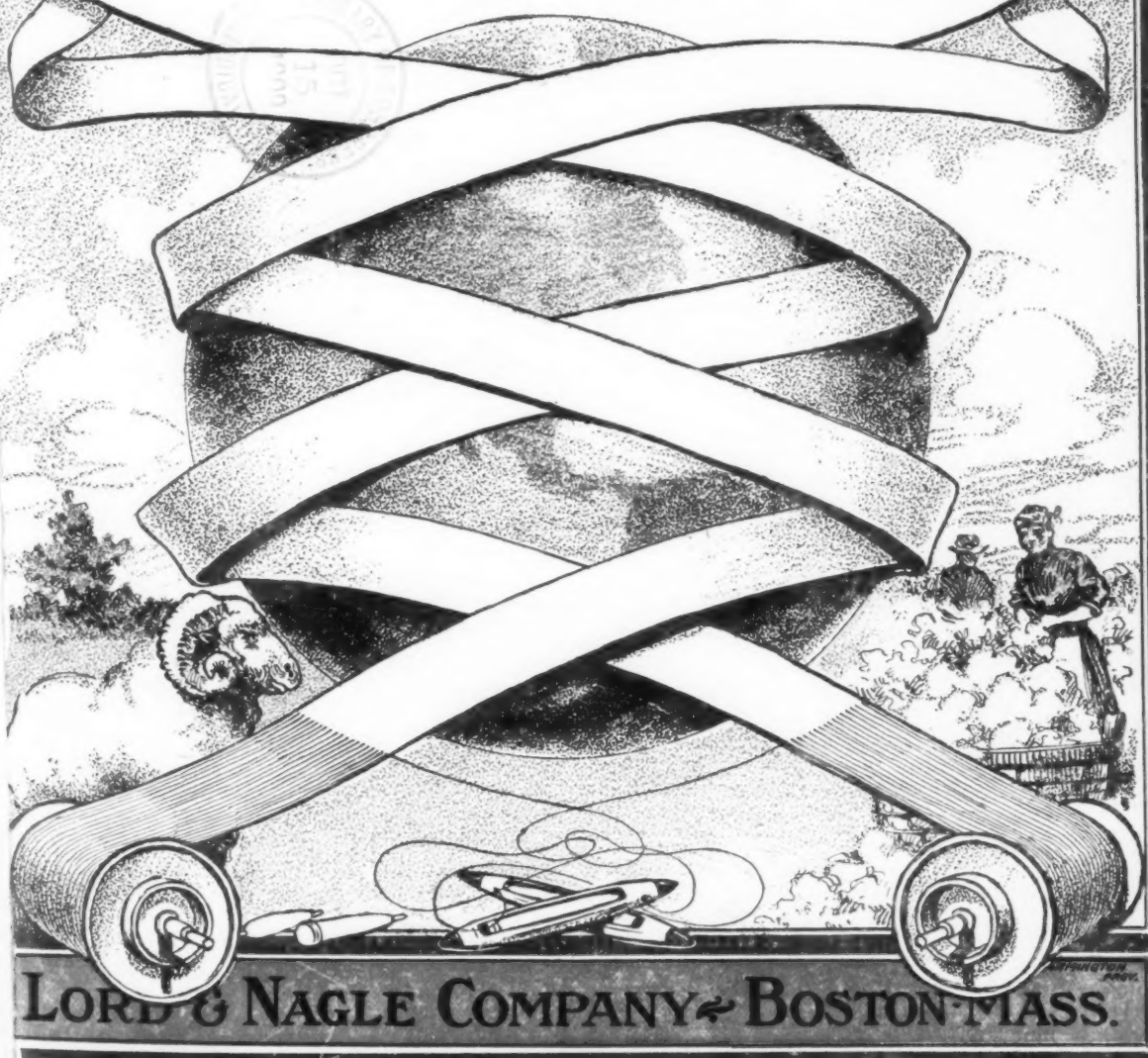
Volume XXXVII.
Number 5.

AUGUST, 1909.

$2.00 per year.
$3.00 with Directory.

# TEXTILE WORLD RECORD



LORD & NAGLE COMPANY BOSTON MASS.

'e of Contents, Page 63. Buyers Index, Page 167. Index to Advertisements, Page 177.

# Mercerizing Machinery for Piece Goods

—— AND ——

## Yarns in the Warp or Chain

**All Kinds of Outfits for Bleaching Thread and Soft Twisted Yarns.**
**Bleaching Machinery for Yarns in the Warp or Chain.**

# BLEACHING
# DYEING
# DRYING
## AND
# FINISHING
# MACHINERY

Singeing Machines, Boiling Kiers, Washers, Water, Chemic and Sour Squeezers.

Rusden Patent, Continuous Chainless Steamer, Aniline Agers.

Dyeing Machines, Open Soapers, Blanket Washers, Color Kettles, Horizontal or Vertical Drying Machines, with Copper or Tinned Iron Cylinders.

Water and Starch Mangles, Automatic Tentering Machines, Dyeing Machines for Chain Warps.

Dampening Machines, Calenders for Rolling, Glazing, Chasing and Embossing, also Calenders for Moire Finish.

Sole Manufacturers of Patented Flexible Cloth Expander for Cylinder Drying Machines, Calenders, Mangles, etc.

Combination Rolls Made of Cotton and Husk, especially adapted for Soft Finish, Unequalled for Elasticity and Durability.

Cotton, Paper, Husk, Chilled Iron, Brass and Rubber Rolls, Electro-Deposited Copper Rolls for all purposes.

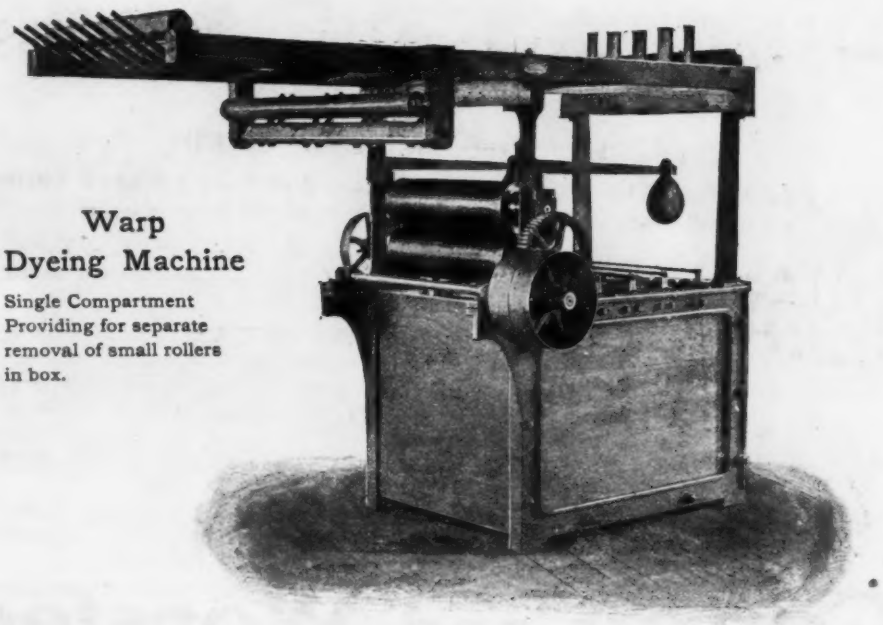
Padding and Drying Machines for Shade Cloths, Single and Double Cylinder Engines, Hydraulic Presses and Pumps.

**Estimates, Drawings and full particulars of complete plants furnished on application**

## THE TEXTILE-FINISHING MACHINERY CO.

**Howard Building, Providence, R. I.**

**STUART W. CRAMER, Southern Representative, Charlotte, N. C.**



**Warp**
**Dyeing Machine**

Single Compartment
Providing for separate
removal of small rollers
in box.

# Bleaching, Dyeing, Drying, Finishing Machinery

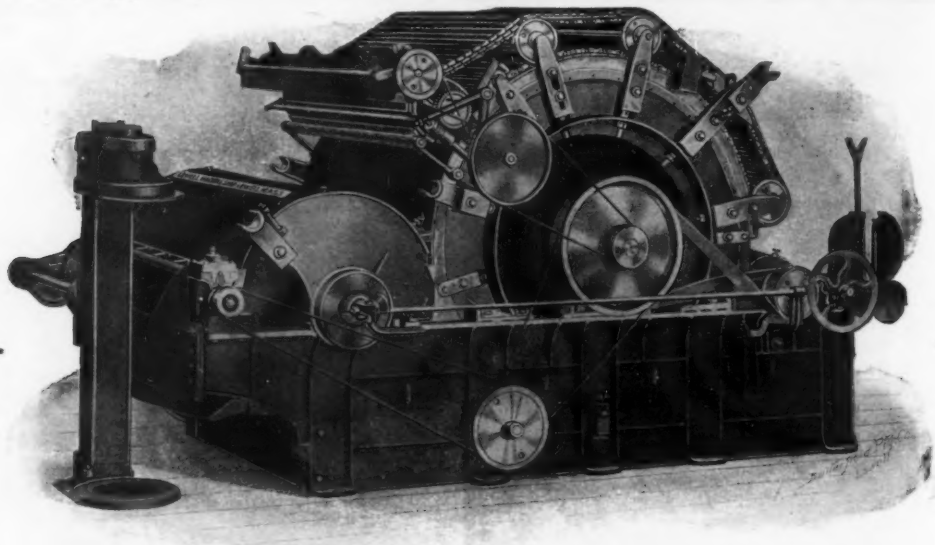
for all textile fabrics.

---

## H. W. BUTTERWORTH & SONS CO.

PHILADELPHIA, PA.

Providence Office, Room 417, Industrial Trust Building.



# Cotton and Worsted Machinery

**With Modifications to Suit Any Class of Work.**

**Cotton Machinery:** Cards, Railway Heads, Drawing Frames, Fly Frames, Speeders, Ring Spinning Frames, Twisters, Spoolers, Reels, Warpers, Slashers, Winders, Looms, Shearing Machines, Balling Machines, Folders, Stamping Machines, Sewing Machines, Size Pumps, Size Kettles, Drawing-in Frames, Baling Presses, Indigo Grinders.

**Worsted Machinery:** Spinning Frames with caps, rings or flyers, Dandy Rovers and Reducers, Cone Second Finishers, Reducers and Rovers, Gill Boxes for Drawing, Preparing and Finishing, Weigh Boxes and Drawing Boxes, Cap Trap, Flyer and Ring Twisters.

**Plans, Specifications and Estimates furnished upon application.**

## Lowell Machine Shop

**LOWELL, MASS.**

## In ordering new spinning frames

If you wish to get the best results,

## Be sure and insist upon

# Centrifugal Clutch Spindles

Mirror Spinning Rings

(trade mark reg. U. S. Pat. Off.)

Rhoades-Chandler Separators,

And Speakman Lever Screws.

We also build

**Northrop Looms** **Dutcher Temples**
(trade mark reg. U. S. Pat. Off.)

**Twisters** **Spoolers**

**Warpers** **Reels**

and other patented specialties
for Cotton and Worsted Mills

# DRAPER COMPANY

**Hopedale, Mass.**

**J. D. Cloudman, Southern Agent**

**40 So. Forsyth Street, Atlanta, Ga.**

THE EMPHATIC SUCCESS OF OUR "IDEAL" AUTOMATIC LOOM IS DUE TO SEVERAL SALIENT POINTS OF SUPERIORITY OVER ALL COMPETITORS:

1st. The ease and smoothness with which they start up.

2d. The acknowledged superiority of the cloth woven.

3d. Simple and thoroughly mechanical construction, assuring freedom from the constant breakage and expensive repairs attending other automatic looms.

4th. No special bobbins, shuttles or other expensive parts.

5th. Ability to use cop or bobbin filling interchangeably.

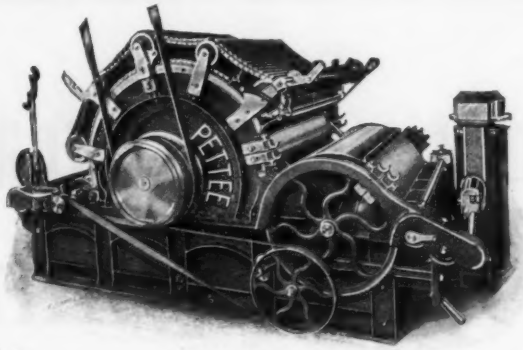
6th. Superiority of warp stop motion which does not break or fray the softest yarn.

7th. Of the thousands in operation not a single bobbin or crank shaft broken.

IN PROOF OF CLAIMS WE POINT TO THOSE MILLS FORMERLY USING OUR COMPETITORS' LOOMS THAT ARE NOW USING OURS.

**The Stafford Company**

**Readville, Mass.**





MODERN—ECONOMICAL

# Cotton Machinery

IF YOU WANT ANYTHING IN THE LINES LISTED BELOW, WE CAN GIVE YOU *UP-TO-DATE* MACHINES THAT ARE DESIGNED TO, AND WILL, *SAVE YOU MONEY* IN PRODUCTION AND OPERATING EXPENSES

| | |
|---|---|
| Revolving Flat Cards, | Intermediate and Roving Frames, |
| Lap Winders, | Spinning Frames, |
| Drawing Frames, | Spoolers and Reels |
| Railway Heads, | |
| Slubbing, | |

## Saco and Pettee Machine Shops

Works at Newton Upper Falls, Mass., and Biddeford, Me., U. S. A.

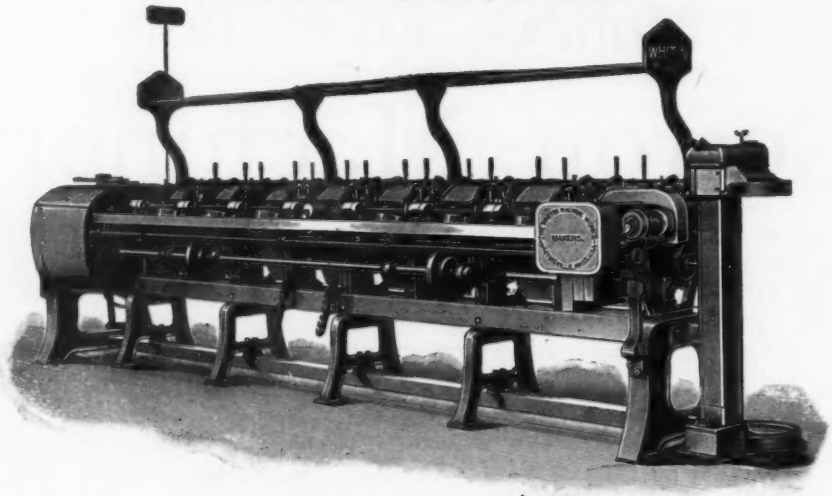
Southern Agent A. H. Washburn Charlotte, N. C.

THE

# WHITIN MACHINE WORKS,

# Cotton Machinery

**WHITINSVILLE, MASS.**



HIGH SPEED COMBER 1906 MODEL.

Revolving Flat Carding Engines,
Sliver Lap Machines,
Ribbon Lap Machines, Combers,
Railway Heads, Drawing Frames,
Spinning Frames, Spoolers, Twisters,
Long Chain Quilling Machines, Reels, Looms.

**Southern Agent,**
**S. W. CRAMER**

**Trust Building, CHARLOTTE, N. C.**
**Equitable Building, ATLANTA, GA.**

# "Kitson Products"

## Blowing Systems

For Conveying Bale Cotton
from Storehouse to Picker-room

## Self-Feeding Openers
## Lappers and
## Cleaning Trunks

---

## Waste-Working Machinery

---

## Raw Stock Cotton Dryers

---

We own the Patterns and can furnish REPAIR PARTS for PICKERS
formerly built by

**WHITEHEAD & ATHERTON, . Lowell, Mass.**
**ATHERTON MACHINE CO., - - Lowell, Mass.**
**A. T. ATHERTON MACHINE CO., Pawtucket, R. I.**

---

# Kitson Machine Shop

## Lowell, Mass.

# Two machines in one. – And more.

Our automatic hosiery machines make hosiery by the yard or the mile; and everything complete in one string; the foot, the rib top—or a tucked top on ladies' stockings – and all put together.

No skilled topper is required. The machine does the topping.

One of these machines takes the place of the two ordinarily used – footer and ribber – besides the skilled operator. And only one operator is needed to attend fifteen or sixteen machines, turning out from 50 to 90 dozen pairs—according to the gauge—in a 10-hour day.

With this machine in your factory you save labor cost and avoid needle breakage and other derangements. And you get your goods out when you want them.

How long can you afford to do without it?

## Scott & Williams

Machinery for Knitting Mills

2079 E. Cumberland Street, Philadelphia, Pa., U. S. A.

# Dry Air vs. Moist Air

## Ventilation

It is not a question of whether or not the mill is to be ventilated, but HOW it will be ventilated.

Practically all mills during hot weather open the windows to procure natural ventilation to assist in cooling their mills. This air is dry and at the outside temperature.

WITH THE CARRIER SYSTEM all the air for ventilation enters the building through the humidifier. This air is moistened to saturation and on very hot days leaves the humidifier from 14° to 18° BELOW the outside temperature.

**Which does the most cooling?**

**Which does the most humidifying?**

DRY AIR VENTILATION through the windows brings in dirt and dust, creates draughts that break the yarns and the quantity, being dependent upon the atmospheric conditions, is not easily controlled.

MOIST AIR VENTILATION by the Carrier System thoroughly cleanses the air, produces no draughts and the quantity is controlled at the will of the operator.

**Carrier Air Conditioning Co.**

**of America**

**39 Cortlandt St. New York**

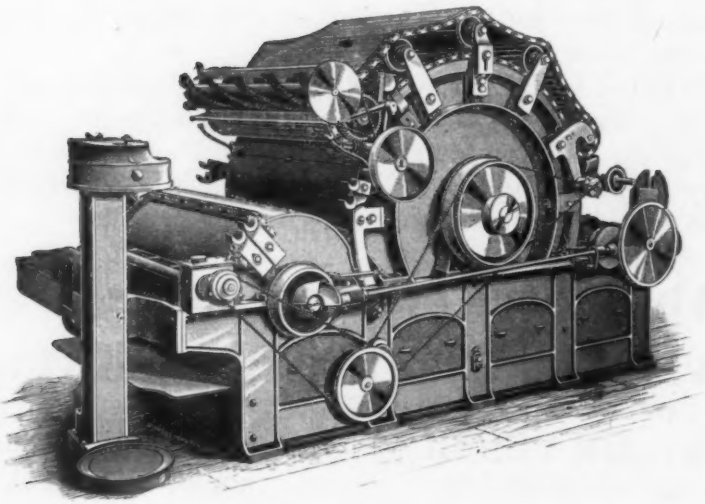
(104-C)

# Cotton Machinery

## MASON MACHINE WORKS,

**TAUNTON, MASS.**

*Southern Office,*
**Charlotte,**
**N. C.**



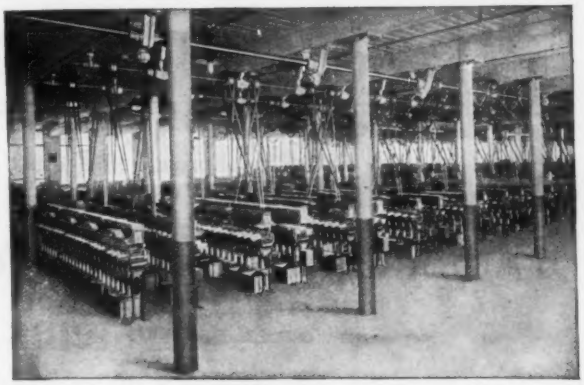
**Cards,**
**Combers, Railway**
**Heads, Drawing Frames**
**Spinning Frames, Mules and Looms**

INCLUDING

**Plain and Fancy Silk Looms**

Winding room of a modern 75000 spindle cotton yarn mill using

*No 50 "UNIVERSALS"* exclusively for coning, tubing and doubling.



# UNIVERSAL WINDING

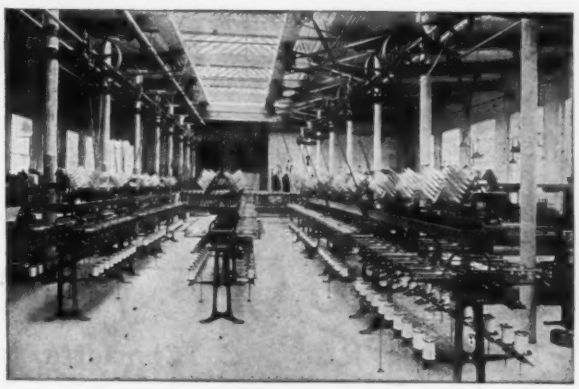
*No. 10 "UNIVERSAL"*

Loom Cop Winders in a Prominent Silk ribbon mill.

# COMPANY - BOSTON

*No. 90 "UNIVERSALS"*

Installed for Winding Cotton-filling.



# IMPORTANT ANNOUNCEMENT

Manufacturers are hereby warned against using infringements upon the Cramer patents for

## Automatic Regulators for Humidifying Systems

Before considering the purchase of infringing devices, make sure that the vendor is amply financially responsible and guarantees to imdemnify the purchaser against loss by damage suits, for both infringers and users of infringements, however crude such infringements may be, will be prosecuted to the full extent of the law.

Don't be imposed upon by misleading terms and claims as to what the vendor's patents cover; anyone can get a patent for almost anything in the way of specific constructions; the vital question is whether or not such patents infringe other prior patents.

## Cramer System of Air Conditioning

**Spray Humidifiers** as good as the best, of large capacity, durable, sanitary, air cleansing and efficient.

**Air Conditioners** *comprising all the good points of spray humidifiers*, particularly as to large moistening capacity and simplicity; *combined with the good points of evaporation types of humidifiers*, such as complete evaporation of the moisture, large air cleansing capacity and good distribution; *and without the objectionable features of either type*, such as wetting down, localized moistening, large and clumsy constructions, unsanitary conditions due to difficulty of access for cleaning and to the use of wet absorbent disease-breeding materials, and largely reduced efficiencies at all except the lowest humidities,—*features*, simplicity, durability comprising only seamless drawn sheet copper casings, a spray nozzle and a fan. The fans are either electrical driven, or mechanically driven with belts or ropes as the special requirements of each case dictate.

## STUART W. CRAMER

**Providence, R. I.** **Charlotte, N. C.** **Atlanta, Ga.**

# EVAN ARTHUR LEIGH

232 Summer Street (opposite the South Station), Boston, Mass.

SOLE AGENT

IN THE UNITED STATES AND CANADA FOR

## Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

## Cotton, Woolen and Worsted Machinery

**Platt's Patent Opening and Picking Machinery.**
**Platt's Cotton Comber will comb from 7-8" stock to Sea Islands.**
**Platt's Special Machinery for Making Cotton Waste into Yarns.**
**Platt's Special Machinery for Making French Worsted Yarns.**
**Platt's Woolen and Worsted Carding Engines, Special Designs.**
**Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.**

### MATHER & PLATT, LTD.

Dyeing and Finishing Machinery.
**Archbutt-Deeley System for purifying and softening water.**

### GEORGE HODGSON, LTD.

**Looms for Worsteds, etc.**

### THE PATENT AUTOMATIC FEEDING MACH. CO., LTD.

**Patent Feeding Machines for wool, cotton, flax, fur and fibrous material.**

**JOSEPH SYKES BROS.,**
**Card Clothing for Cotton.**

**JAMES CRITCHLEY & SONS,**
**Card Clothing for Woolen and Worsted.**

### WILSON BROS. BOBBIN CO.'S.

**Bobbins, Shuttles, etc.**

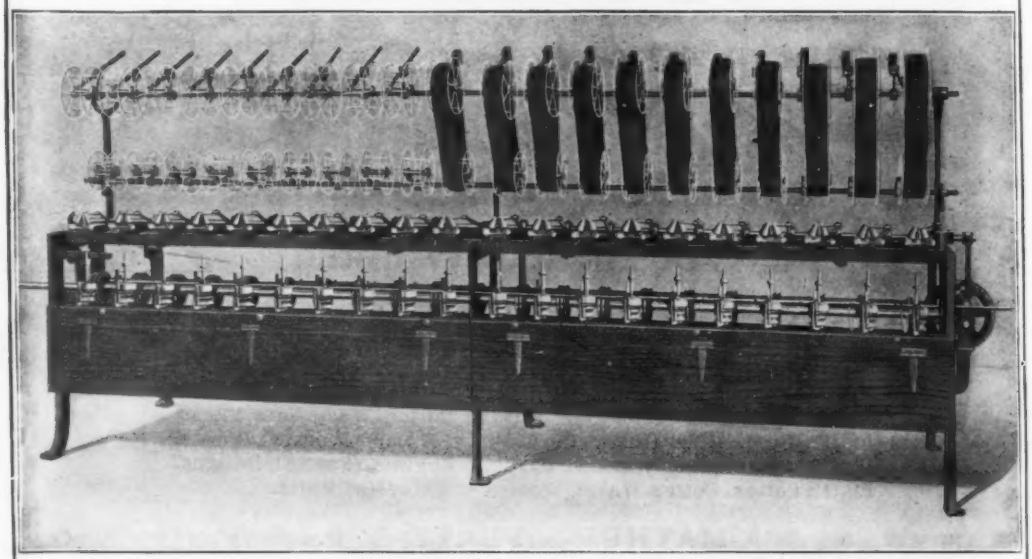
**Dronsfield Bros. Grinding Machinery and Emery Filleting. The Best French and English Combing and Rubbing Aprons. Harding's Pins and Circles. Varey's Fallers, etc.**

# OSWALD LEVER CO.

**(Formerly LEVER & GRUNDY.)**

MANUFACTURERS OF TEXTILE MACHINERY

SOLE MAKERS OF OUR PATENTED SPECIALTIES
IN THE UNITED STATES



High Speed Cross Quiller to wind from skeins, spools or mule cops onto quills or paper tubes. It is built to run from 1800 to 2400 revolutions.

Conical and Parallel Tube Winding Machines; Warping Machines and Creels; Brass Bobbin Winding and other Machinery for lace mills; Chenille Cutting Machines, Sectional Warping Mill, Beaming Machines, etc.; Cop Winding Machines for butts to weave from outside; Filling Bobbin or Quill Winding Machines; Vertical Spindle Spooling Machine for silk, fine cotton, wool and worsted; Variable Speed Bobbin Machines for large bobbins used in knitting mills; Dresser Spooling Machines; Reeling Machines.

**Lehigh Ave. and Mascher Sts., PHILADELPHIA, PA.**

# JAMES HUNTER MACHINE CO.

**NORTH ADAMS, MASS., U. S. A.**

*Piece Dye Kettle.* *Bulletin 53*

## The Hunter PIECE DYE KETTLE

A machine that produces results.

No Shading or Uneven Dyeing.

Tank made of 3" CLEAR CYPRESS.

Tongued and Grooved and thoroughly boltcd.

### IMPROVED HUMP REEL

### FRICTION PULLEY DRIVE

The heaviest, most substantial dye kettle built.

Any size for any number of strings.

***Send for Bulletin No. 53.***

# Pro and Con

## The Turbo-Humidifier

## The one that Completely Vaporizes all the Water

**Con—** "I agree with your claim that in first cost, in size, flexibility, and other points The Turbo-Humidifier has the advantage over all others, but I fear its small orifices will enlarge by wear."

**Pro—** Should they do so, these parts can easily and inexpensively be replaced. However some have been in use more than two (2) years and a micrometer shows no indication of wear.

**Con—** "Well, that's satisfactorily answered, but won't the orifices clog?"

**Pro—** Yes, they may—but very infrequently and absolutely without damage. If one does clog, a handy man, five minutes and a monkey wrench will restore the head to normal condition.

**Con—** "That's good enough for me, but isn't it necessary to filter the water used?"

**Pro—** In some cases. We have a very simple sponge filter to take care of it; the Turbo-Humidifier because of complete vaporization uses only the water that passes through it, and not 20 to 30 times as much; hence a small filter —and no drains.

**Pro—** "As the Turbo-Humidifier is simple, effective, easily cared for; cannot overflow, prevents dust, soot and lint; is small, adaptable—and as inquiry develops no objection to it, you better come over and figure out the best arrangement for our mill."

(*The Catalogue is Pro and Con, send for a copy*)

## The G. M. Parks Company

**Sole Agent** **Fitchburg, Massachusetts**

**Southern Office, No. 1 Trust Building, Charlotte, North Carolina**

**B. S. COTTRELL, Manager**

# SAVE IN DYEING

**75% in Labor**
**50% " Steam**
**35% " Dyes**

## "HURRICANE"

## Circulating Dyeing Machines

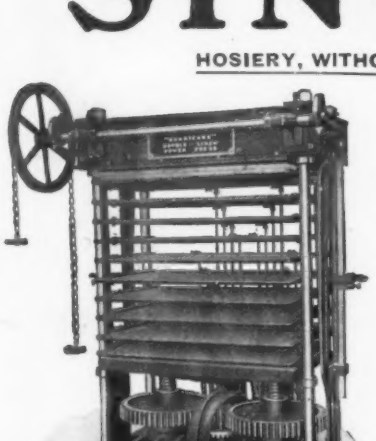
**For Yarn, Hosiery, Etc.**
**Are in a Class by Themselves**

Patents No. 918,484 and 918,485
April 13, 1909.

ALL INFRINGEMENTS WILL BE PROSECUTED

# SINGEING

**HOSIERY, WITHOUT BOARDS,—COSTS LESS THAN HALF**



What you have paid heretofore
BY USING

## "Hurricane" Automatic Singeing Machines

Patent No. 895,711, August 11, 1908
" " 919,999, April 27, 1909

**Power Screw and Hydraulic**

# PRESSES

For Hot or Cold Finishing, make higher prices possible on account of the better finish of the goods.

## THE PHILADELPHIA DRYING MACHINERY COMPANY

**"Hurricane" Dyeing, Drying and Finishing Machinery**
**Complete Equipments for Scouring, Bleaching, Carbonizing, Etc.**
**6721 Germantown Ave., Philadelphia, Pa.**

# Flyfoot Belt Dressing

**is as much a part of your manufacturing equipment as belts themselves**

**For no used belt will give 100% service from pulleys and last its full life without the help of FLYFOOT.**

***Now is the time to stop waste of power and ruination of belts through slippage.***

**$2.00 BUYS A 5 LB. TIN that will probably save ten times its cost in power alone.**

Chas. A. Schieren Company
ESTABLISHED 1852

**Tanners Belt Manufacturers**

New York, 30-38 Ferry St. Chicago, 84-86-88 Franklin St.
Boston, 641-643 Atlantic Av. Philadelphia, 226 North 3d St.
Pittsburg, 205 Wood St. Denver, 1622 Wazee St.
Hamburg, Germany, Auf dem Sande 1.

# The Whaleback

## An Improved Piece-End Sewing Machine

Designed especially for piece-end sewing in Bleaching, Dyeing, Printing and Finishing Works, it holds the cloth taut in the piece during stitching, obviates narrowing-in of the ends of the piece thus saving in "shorts."

The **steel-spiked chain** follows the shape of the frame, over a **solid** bed. This insures steadier running and a **more even stitch** than is possible with spiked wheels running on carrier bowls.

The full width of the cloth may be fastened at once—saving both time and labor.

There is a special stripping arrangement with a cutter that trims the edges of the seam, to which an automatic tar-mark stamping device can be attached if desired.

## A New Piece-End Sewing Machine

### Embodying Some Very Great Improvements

It has a special steel link chain for the guide pins, taking the place of the objectionable solid ring. The ratchet motion is made in one solid piece, thus dispensing with troublesome set screws.

Neither loose threads or fluff can get into the bearings as the top shaft is enclosed.

The needle bar is square and works against a true milled surface.

The height of machine is adjustable, and there is ample space for working the treadle.

You can reduce your time and labor costs and get better work with this machine than with any other makes.

**We are Sole Agents for The New Patent Pneumatic Beetle**

**Thos. Leyland & Co.,** F. T. WALSH, Manager 60 India St., BOSTON, MASS.

# American Textile Specialty Machinery Co.

## 670 Eddy St., Providence, R. I.

MANUFACTURERS OF

## SHUTTLES AND SHUTTLE IRONS

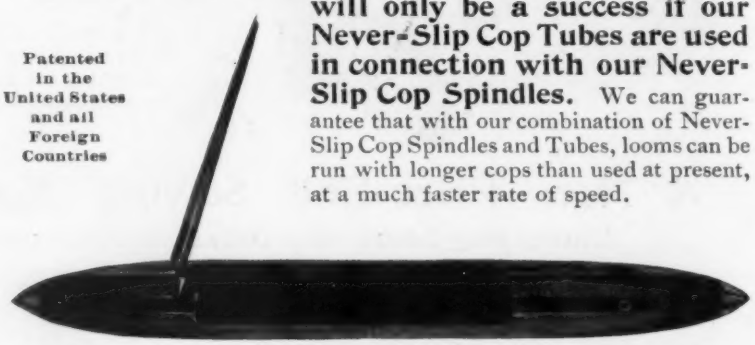
## FOR ALL TEXTILE PURPOSES

**Never-Slip Cop Tube**

Patent applied for.

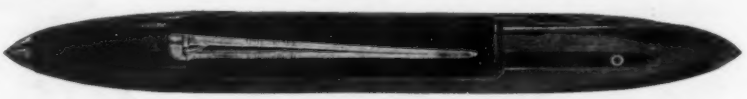
**Filling-Waste is reduced to nothing and long Cops will only be a success if our Never-Slip Cop Tubes are used in connection with our Never-Slip Cop Spindles.** We can guarantee that with our combination of Never-Slip Cop Spindles and Tubes, looms can be run with longer cops than used at present, at a much faster rate of speed.

Patented in the United States and all Foreign Countries



**Shuttle with Spindle Raised**

U. S. Patents: 778851, Jan. 3, 1905; 790611, May 23, 1905; other patents pending



**Shuttle with Spindle Lowered**

U. S. Patents; 778851, Jan. 3, 1905; 790611, May 23, 1905; other patents pending

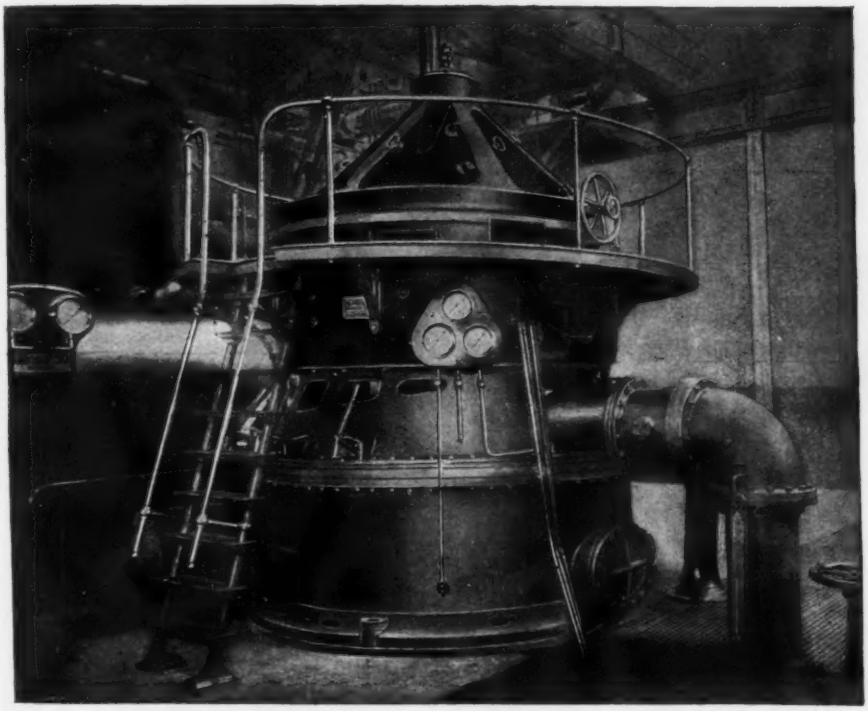
**We also manufacture a complete line of**

# Paper Cop Tubes, Cones and Shells

**Send your samples and we will quote prices on any lot desired**

**New York Office, 363-373 Rider Ave.**

# Curtis Low Pressure Turbines
## operate with exhaust steam



**31700 Kilowatts Installed – and on order.**

The Curtis low pressure turbine offers a means of increasing the capacity and improving the economy of existing power stations which use reciprocating engines, whether the engines are now operating condensing or non-condensing. A complete line is available from 300 to 7,000 kilowatts.

It is also a means of producing electric energy from steam exhausted by engines employed in manufacturing—the energy being in the nature of a valuable by-product secured with a minimum expense. By this means old Engine driven plants can by a small expenditure be brought to a state of ideal economy.

# General Electric Company

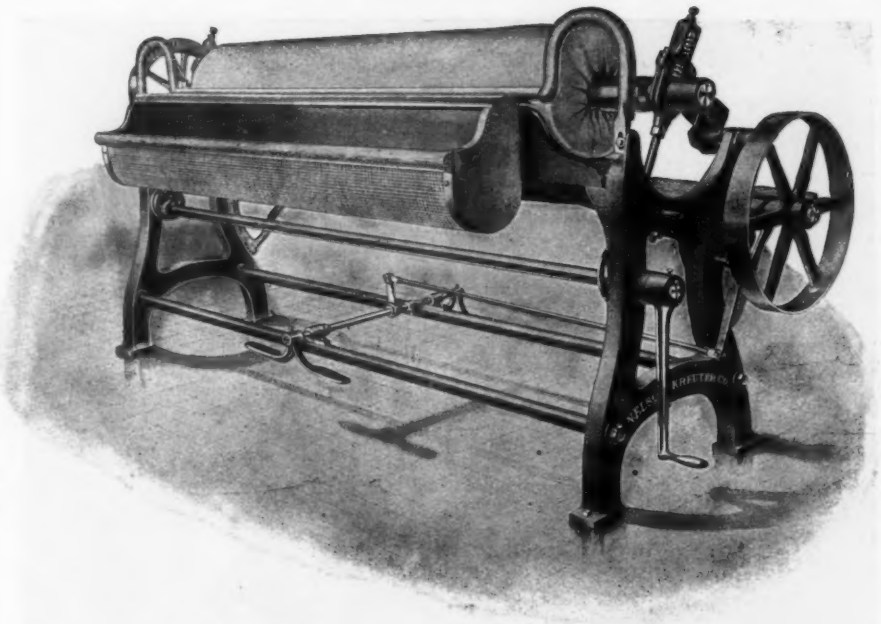
New York Office
30 Church St.

**Principal Office, Schenectady, N. Y.**

Sales Office in
all large cities

(2072)

# UNDERWEAR and HOSIERY IRONER



This machine is specially adapted for ironing ribbed and flat underwear and knit goods. The pressure is adjustable and this feature in connection with the padded roll eliminates the possibility of breaking buttons. The machine is very inexpensive to maintain, is easily operated, and gives the goods a smooth, fine finish. Every mill should own one of these ironers.

The American Laundry Machinery Mfg Co

Western Division: 78-80 Franklin St. Chicago

Eastern Division: 132-138 W. 27th St. New York

Southern Division: Station "H" Cincinnati

# Globe Cotton Softener

is a pure soluble product made from vegetable oil which replaces TALLOW and other substances as a softener and lubricant in the sizing, dyeing, finishing and bleaching of cotton yarns, fabrics, knit goods, etc.

**Globe Cotton Softener** modifies the stiffness and harshness due to the materials used in the various process.

When used by itself for softening, "oiling" or "greening" bleached and dyed goods, yarns or **knit** goods gives a full mellow feel and brightens the colors **without** greasiness.

## Corn Products Refining Co., New York

# New Process Noiseless Pinions

Make an ideal motor drive.

By their use you secure a noiseless positive drive with no decrease in efficiency. They will wear like iron.

**NEW PROCESS PINIONS** also reduce objectional vibrations and are therefore, the best for high speed drives.

New Process rawhide is cured by our secret process which makes it different from the ordinary kind.

For twenty years we have been making gears and we stand back of our product with a guarantee as to quality and workmanship.

We make all other kinds of gears as well as rawhide. May we tell you more about them?

*Descriptive Catalogue for the asking.*

**The New Process Raw Hide Company**

**Syracuse, N. Y.**

# HARD WATER IS A HANDICAP

## in Textile Work.

## Soft Uniform Water

enables the production of highest grade goods at minimum cost.

**Bright, Delicate Fast Colors**

are readily obtainable if the water is correct.

## Level Dyeing

is easy when our "Eureka" treated water is used throughout the mill. The saving in consumption of softener, detergents, dyes, chemicals and alkali quickly pays for a

## Dodge "Eureka" Water Softener and Purifier

This machine removes the impurities in suspension as well as those in solution.

The purified water, therefore, is not only ideal for your textile processes, but being non-incrusting it

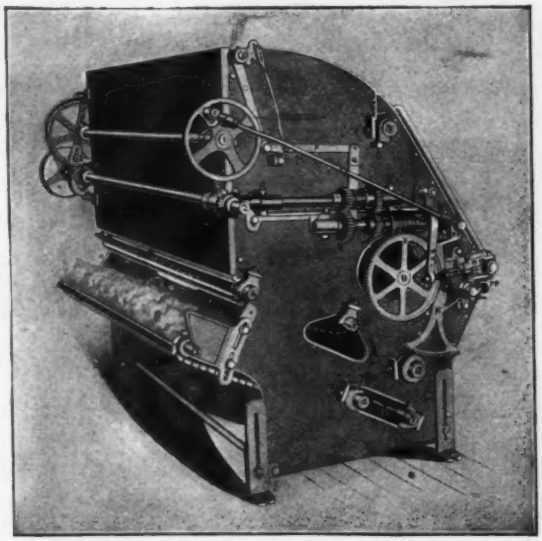
## PREVENTS SCALE

when fed to the boiler.

Let us send you some of our interesting literature telling about water troubles, and their remedies.

**DODGE MANUFACTURING CO.,** Sta. H-46, **MISHAWAKA, IND.**

# THE FISHER PATENT CARD FEED



*Write Us For List of Mills Where Machines Are Used.*

## Woonsocket Machine and Press Company

WOONSOCKET, R. I.

# The New Bristle Cloth Stretcher sells itself—read this letter

The Pond Lily Co.,
W. H. Forsyth, Pres.
W. C. Harmon, Sec. & Treas.

Dyers of Cotton Piece Goods, Hosiery and Yarns.
1475 Whalley Avenue

New Haven, Conn., July 15th 1909

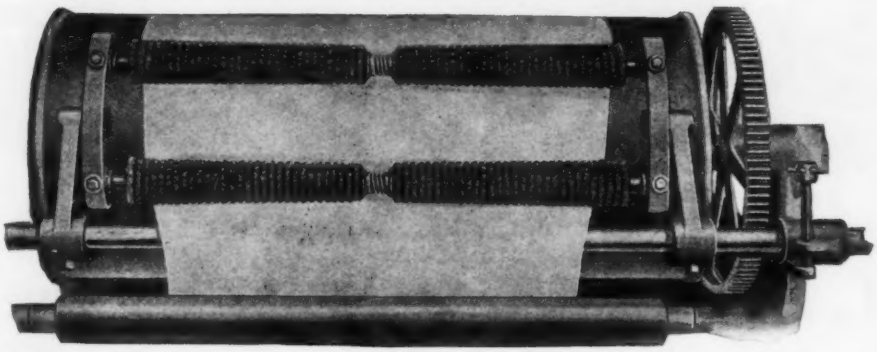
American Finishing Machinery Co.,
141 Milk St.,
Boston, Mass.

Gentlemen:-

We are enclosing you herewith our check for $333.00 in settlement of your invoice of July 2nd, for the brush cloth stretcher. As this machine has proven very satisfactory to us we wish to order another one, and will therefore ask you to send us a diagram so that we may send you specifications.

Very truly yours,
THE POND LILY CO.

Dict. WCH



All we ask is a chance to prove that this new, patented stretcher is supreme in stretching efficiency, on all fabrics, starched or unstarched; in the superior finish it gives, and its safety—The machine will take care of the sale. Let us figure on your requirements. Sold on approval.

## American Finishing Machinery Company

141 Milk Street, Boston, Mass. 4 Cannon St., Manchester, Eng.

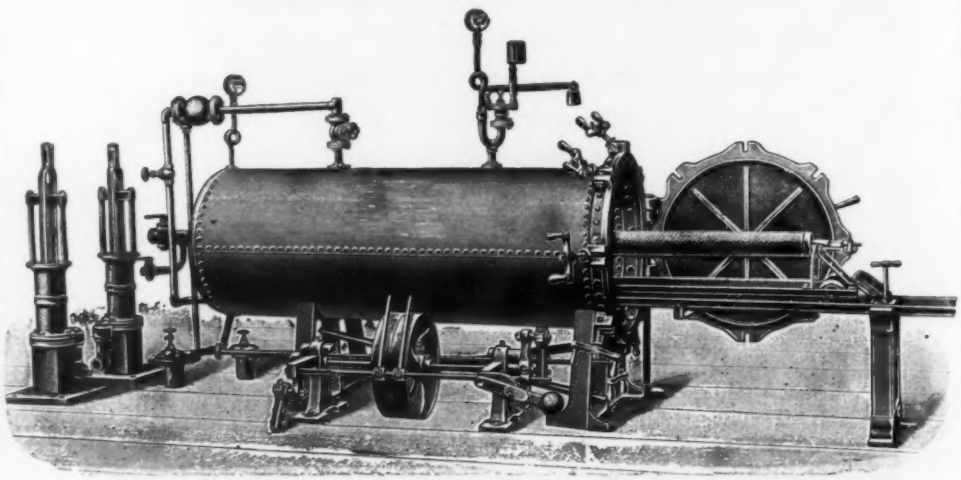
# Cockled Cloth Positively Prevented

and a

## Permanent Stainless Lustre Secured

by using the

## Paul Klug Dry Decating Machine



Write for particulars

**L. H. A. Schwartz & Co.,** 53 State Street, Boston

American Agents

Built by Paul Klug Machine Works, Crimmitschau, Saxony, Manufacturers of Special Finishing Machinery for Woolen and Worsted Mills; Wet Decating Apparatus, Sucking-out Machine for Piece Goods (extractor), Rotary Presses, Carbonizers, etc.

# Business Established 1865

To illustrate and explain in detail all that we make would fill this journal. For us to find out what you need would require a regiment of salesmen with a mint of money.

Every known Textile Fabric I have seen made, (hardly a single exception) through the courtesy of the makers. My experience of over 40 years in Textiles enables me to understand the requirements of the multifarious ramifications pertaining to Textile Fabrics.

I am able to develop, to construct and to operate all that I make; this is a fact that cannot be disputed and should be a credit to a machine maker whose efforts are to reduce cost of production with the best facilities.

The trade may know more about what I make, for the asking; and if I do not make what you require, I can tell you where it can be found.

My descriptive list circular shows what there is to be had, at the same time, such a classification does not cover all the various types and sizes and kinds of machinery outside of the ordinary. To take care of every proposition is a problem and many arise where special developments are necessary. That is part of my business.

## JACOB K. ALTEMUS

**Textile Machinery**

**2824 No. 4th Street, - Philadelphia, Pa.**

# SMITH, DRUM & CO.

**"BUILDERS OF THE BEST"**

**Labor Saving Machinery for Dyeing, Singeing and Finishing**

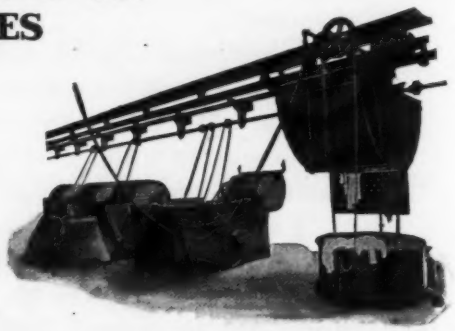
**HOSIERY**

IN SULPHUR, ANILINE, DEVELOPED BLACKS AND COLORS
POWER SCREW PRESSES and MERCERIZING MACHINES

**SAVE LABOR** and **DYE STUFF** and do **BETTER WORK** in your dye house by using

**SMITH, DRUM & CO. MACHINES**

Full Particulars on Application



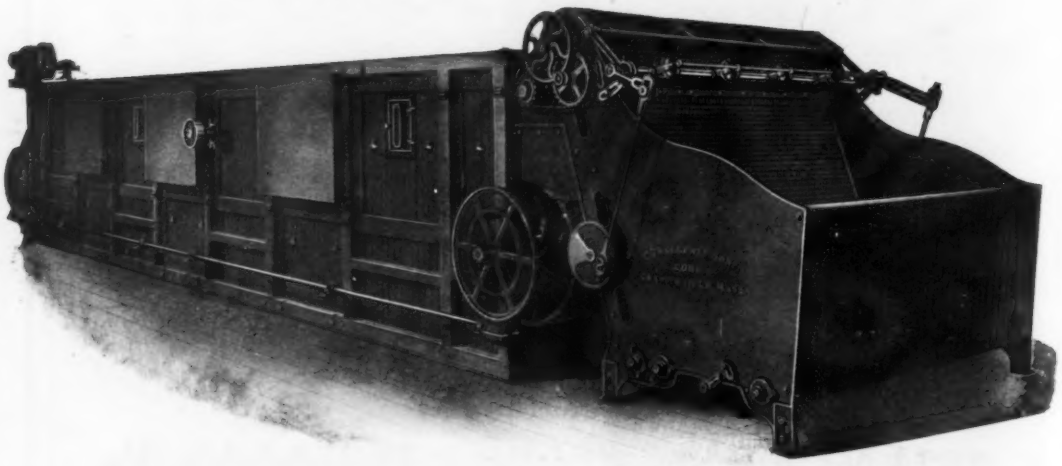
**CORAL AND CUMBERLAND STREETS**

**PHILA., PA.**

# C. G. SARGENT'S SONS

CORPORATION

**GRANITEVILLE, MASS.**



**BUILDERS OF**

**Stock Dryers, Wool Washers, Wool Dusters, Carbonizing Plants, Burr Pickers, Etc.**

# SPINDLES

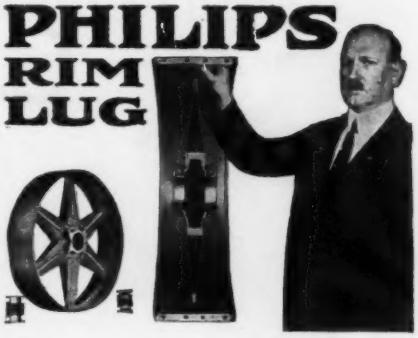
EASTON AND BURNHAM MACHINE CO.

PAWTUCKET, R. I.

REPAIRS FOR RABBETH SPINDLES



PHILIPS RIM LUG



## The Rim Lug

IS USUALLY A VERY WEAK POINT IN THE MAJORITY of split pulleys. The manufacturers know it and are very loath to speak of it, but not so with us—we're very glad to call attention to ours, for the

**Philips Lug**

is the strongest point of our pulley rim. The rim lugs extend over the entire width of the pulley, and are formed by the ends of the sheets being turned inwardly from the face thus making the strongest kind of joint and preventing the sharp ends of sheet from coming in contact with and cutting the belt.

This construction does not destroy with grooves or rivets the most important part of the pulley,—the face.

That's another reason why Phillips Pulleys are so popular. They're built on the best mechanical principles and are uniform throughout.

Send today for descriptive circular.

**PHILIPS PRESSED STEEL PULLEY WORKS**

**Philadelphia**

# C. & K. Dobbies

are best adapted to every requirement — always the leaders in efficiency and economy.

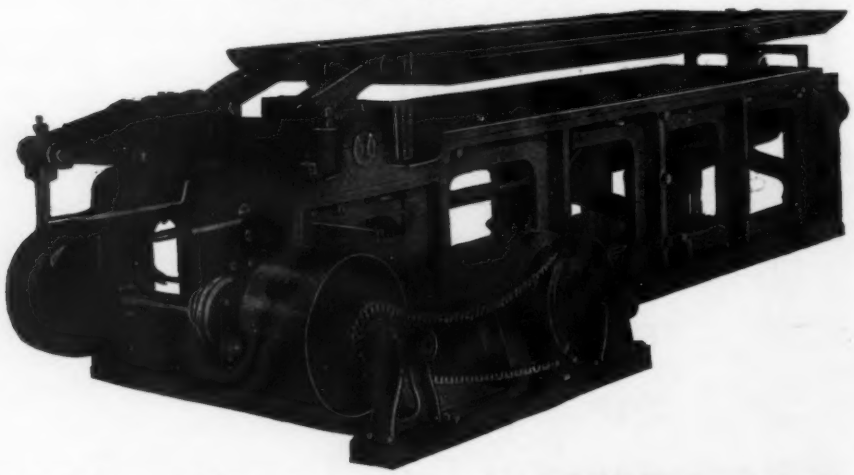
We apply them to any and all makes of looms.

**Crompton & Knowles Loom Works**

Worcester Providence Philadelphia

# Farrel Foundry & Machine Co.

ANSONIA, CONN.



**SINGLE AND DOUBLE FELT HARDENERS.**

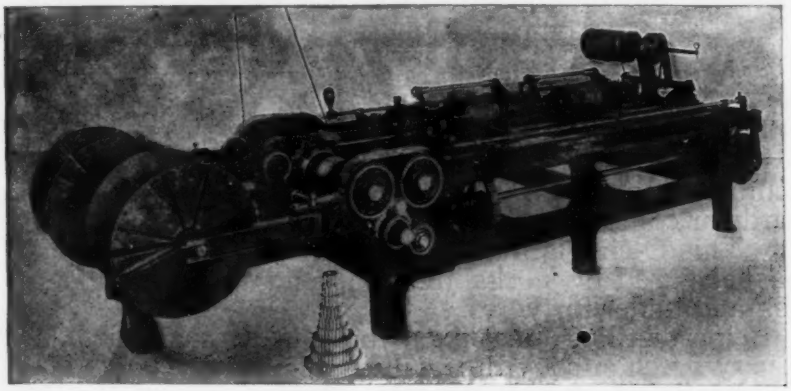
Chilled and Soft Iron Rolls. Heavy Transmission Machinery.

Machine Molded and Machine Cut Gearing, to 20 ft. diameter, Etc., Etc.

Heavy Castings, in Gray Iron or Semi Steel.

# The Haskell-Dawes Machine Co.

176 Federal Street., Boston, Mass. Works: Frankford Junction, Philadelphia



**Spinning, Forming, Twisting and Laying Machinery.**

We build the Very best type of

**Modern, High Speed, Geared Machines**

For Making Cotton, Flax, Jute and Manila Rope and Twine.

AGENTS SAMUEL LAWSON'S SONS' JUTE AND FLAX MACHINERY.

# LAWSONS

Hope Foundry, LEEDS, England

BRANCH OF

## Fairbairn Lawson Combe Barbour, Ltd.

MAKERS OF MACHINERY FOR

**Preparing and Spinning**

## Flax, Hemp, Tow and Jute

**Special Machinery for the Manufacture of Twines, Rope Yarns and Binder Twine**

Good's Combined Hackling and Spreading Machine.

Long Reach Screw-Gill Drawing Frames. Chain-Gill Drawing Frames with Apron Heads.

Patent High-Speed Horizontal and Automatic Spinning Frames for Manila.

Improved Laying Machines.

Haskell-Dawes Tubing Twisters.

Brownell's Patent Twisting and Laying Machines for Twine.

*N. B.—Complete Plans and Estimates for Flax, Tow, Hemp and Jute Mills, Trawl Twine Factories and Steam Ropeworks.*

# 6% of Noils Saved

**by the use of**

# 75% Olive Oleine

A guaranteed saving of 6 per cent of noils can be made over the use of lard or similar oil by using our **75 per cent Olive Oleine.**

It is not a viscous oil that causes trouble every time the temperature drops, and its use will enable the mill to start its cards or combs as easily Monday morning as any other.

This Oleine is a known quantity of standard worth. It hasbeen used by Yorkshire, (England) worsted mills spinning 60s and under for years.

Being distilled on a fixed formula it is always the same. Every batch oiled with it will run equally well.

**Distilled wool grease oleines** are **"The Natural Wool Oils."**

*Samples and prices on request.*

**H. G. McKerrow Company, Ltd.**

**88 Broad Street, Boston, Mass.**

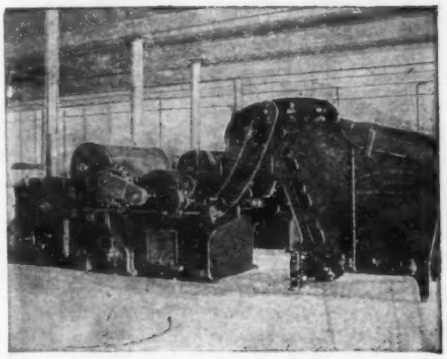
# Make Your Own Bleach Out of Salt Water

We can supply the Knitting Mill trade with an Electrolyzer for the production of bleaching liquor out of ordinary salt water by means of an electrical current, at a very small cost compared with what it will do. Does away with chloride of lime entirely; reduces the amount of sour; no danger of tendering goods. Operates under direct current. Hundreds in use. Prices and full particulars on application.

**The National Laundry Machinery Co.**

**Dayton, Ohio, U. S. A.**

Westinghouse



Westinghouse Motor-Driven Picker with Automatic Feeder.

# Textile Motors

**You can save the production now lost by slipping belts.**

Textile machines individually-driven by Westinghouse Textile Motors operate at a uniform speed with a maximum number of revolutions per day, thus increasing the production by the amount formerly lost by the slipping of both the overhead and the short and tight belts.

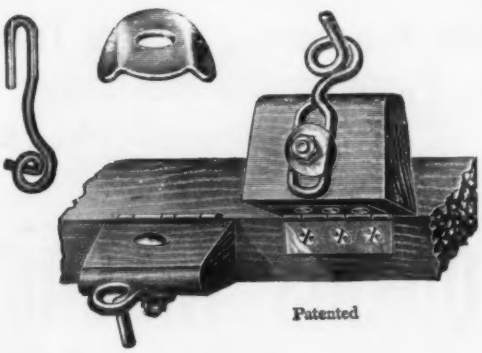
The elimination of all shafting and belts also means a great saving in labor and repairs, and allows the machines to be located exactly where wanted.

**Ask for a set of our "Textile Motor Talks."**

## Westinghouse Electric & Mfg. Co.

Atlanta Chicago Dallas Kansas City New Orleans Pittsburg San Francisco
Baltimore Cincinnati Denver Los Angeles New York St. Louis Seattle
Boston Cleveland Detroit Minneapolis Philadelphia Salt Lake City Syracuse
Buffalo Canada: Canadian Westinghouse Co., Ltd., Hamilton, Ont. Mexico: G. & O. Braniff & Co., City of Mexico.

**The** accompanying illustration shows the **Palmer** adjustable thread guide for spinning and twisting. This guide is **Adjustable** in all directions and can be rigidly and permanently fixed. **Thread** boards and rails of metal which are expensive are not necessary with this **Guide**



Patented

**SEND** two clappers for free samples for circular.

## The Palmer Revolving Guide for Wet and Dry Twisting

Lays the fiber closer
Makes a smoother twist
Saves power
Will outwear many wire guides

Patented

**THE I. E. PALMER CO., Middletown, Conn.**

JAMES SPEED HARRY STEPHENSON

# Speed & Stephenson

## Worsted Machinery

170 Summer Street, - - Boston, Mass.

SOLE SELLING AGENTS FOR

# Improved Noble Combs

Built by JAMES SMITH & SON, Worcester, Mass.

Also representing leading European Manufacturers for all kinds of Worsted Machinery and Supplies.

Change Gears and Parts for above Machinery kept in stock and a general line of Mill Supplies. Second hand Woolen and Worsted Machinery always on hand.

SPECIALTY—Worsted Machinery repaired and rebuilt with the latest improvements or altered as desired. Mill and Machinery Valuers.

Machine Shop, Farley St., So. Lawrence, Mass.

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**Cloth Washers, Dye Tubs, Vats, Fulling Mills,**
**Piece Dyeing Machines, Special Machinery,**
**Brass Founders, Tanks, To Order.**

# Hopkins Machine Works, Inc.

**BRIDGETON, R. I.**

Providence Office, 49 Westminster St.

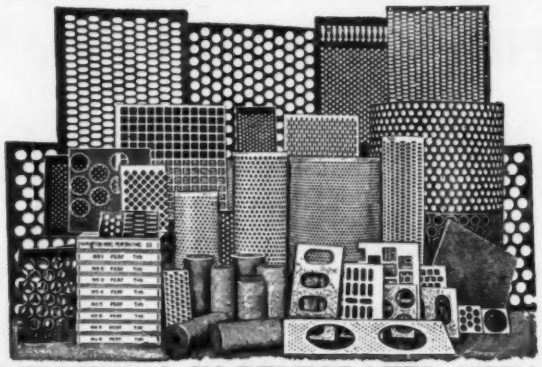
**Spindles and Flyers, for Cotton, Wool, Silk, Flax, etc.**

Send for our latest Catalogue and Price List

**Dye Tub Valves, Cloth Guides, etc. Bronze or Porcelain Rings.**

## PERFORATED METALS FOR TEXTILE MILLS

Used in
Dye Tubs,
Rinse Boxes,
Strainer Bottoms,
Scouring Tanks,
Steam Boxes,
Wool Scouring
Plates.



Used in
Burr Pickers,
Grabbing Machines,
Dyeing Machines,
Extractor Baskets,
Steam Finishing
Machines.

EVERYTHING IN PERFORATED METAL

Perforated Brass and Copper for Wool Washing Machinery.
Perforated Steel (black or galvanized) for Dusters, Reels, Drying Floors,
False Bottoms, Drainers, etc., etc.

ALL SIZES OF STEEL SURFACING.

It has been our business for many years to meet every need in this line and we have both the experience and facilities to do it. As most of this work is made to order send complete specifications.

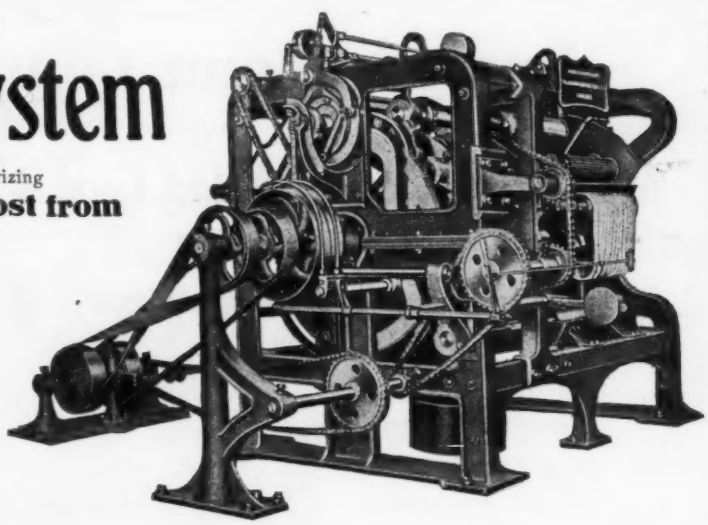
**THE HARRINGTON & KING PERFORATING CO.,**
230 North Union Street,
CHICAGO

New York Office, 114 Liberty Street.

## The Swiss System

of yarn mercerizing
**Reduces the Cost from 20 to 50%**
under that of your present method.

We invite investigation and comparison.



**Swiss Textile Industry Company**

Exclusive American Agent,

**A. W. Buhlmann, Engineer**

487 Broadway Silk Exchange Building New York

# CRESSON

## POWER TRANSMITTING MACHINERY

RING OILING HANGER
"PHILADELPHIA PATTERN"

Shafting Pulleys
Couplings Fly Wheels
Hangers Gears

Rope Driving a Specialty

Power Plants Designed and Equipped

Prices Right Shipments Prompt
Catalogs for the asking

CAST IRON
SPLIT PULLEY

## GEO. V. CRESSON CO.

ENGINEERS FOUNDERS MACHINISTS

PHILADELPHIA, PA.
Allegheny Ave., West of 17th St.

NEW YORK CITY
90 West Street

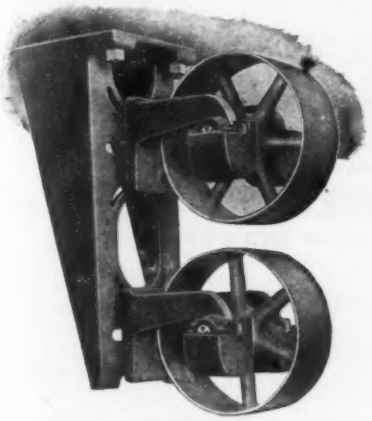
## Darrow-Mann Company

## New River Consolidated Coal & Coke Co.'s

# New River Coal

Nonpareil Bituminous . . All Rail and Tide Water
Gas Coal and Gas Slack . All Rail and Tide Water
Nos. One, Two and Three, Buckwheat

**30 Kilby Street, - Boston, Mass.**



Adjustable Binder Frame for belt drives to Spinning Frames, Twisters, etc.

## WM. SELLERS & CO., Incorporated

Philadelphia, Pa.

Makers of

Shafts,
Couplings,
Pulleys,
Hangers,

and all most approved appliances for the

Transmission of Power by Belts, Gears or Ropes

*Catalogue upon request.*

Machine Tools,
Injectors, Power Cranes.

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Patented in the United States and Foreign Countries.

"If you want the best specify the

**American Wrought Steel Split Pulley**

with rim of one layer of metal, grooved in center, stiffened by internal central flanges, and rolled beads on edges, six duplex steel arms, radiating from a steel hub and without rivets between hub and rim. More than 1,000,000 in use giving entire satisfaction. Sold by Supply Houses everywhere."

*Send for Booklet.*

**The American Pulley Company**
**29th and Bristol Sts., Philadelphia, Pa.**

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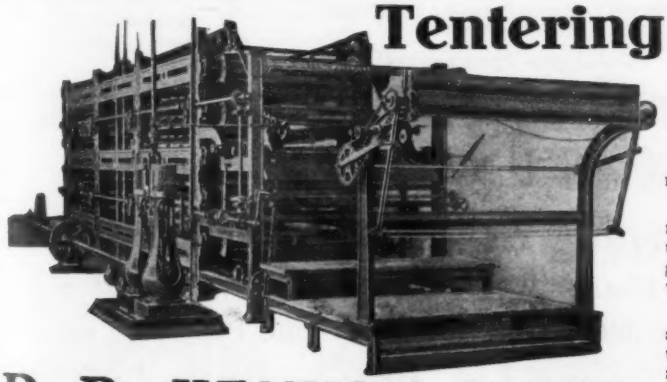


# Tentering and Drying Machine

The cut represents one of our largest machines of the pipe system.

The wet goods in transit through the machine are thoroughly dried and tentered to the proper width. Although goods entering may be of various widths, all delivered are uniform.

The machine uses but a small amount of steam, and being substantially constructed, the repair bill is almost a negligent quantity.

It is equally efficient for heavy as well as light goods, either wide or narrow.

**D. R. KENYON & SON**
**Raritan, New Jersey**

WM. FIRTH, Pres. EDWIN BARNES, Vice-Pres. JOHN H. NELSON, Treas.

# WILLIAM FIRTH CO.

Post Office Square Building, 79 Milk St., Boston, Mass.

SOLE IMPORTERS OF

## ASA LEES & CO., Limited

## TEXTILE MACHINERY

OF EVERY DESCRIPTION FOR COTTON, WOOLEN AND WORSTED.

**Sole Agents for**

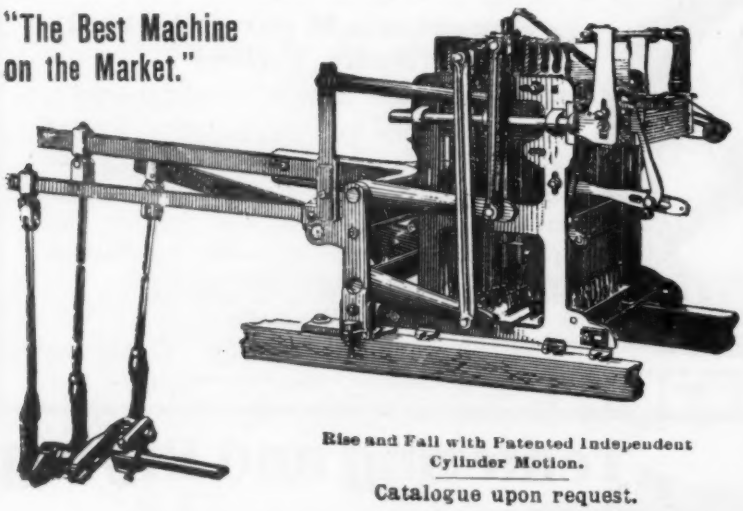
**JOSEPH STUBBS,** Gassing, Winding and Reeling Machinery for Cotton, Worsted and Silk.
**GEO. ORME & CO.,** Patent Hank Indicators, etc.
**WILLIAM TATHAM & CO.,** Waste Machinery.
**R. CENTNER FILS,** Heddles.
**GOODBRAND & CO.,** Yarn Testing Machinery, Warp Reels, etc.
**JOSHUA KERSHAW & SON,** English Roller Skins, etc.
**BUCKLEY & CROSSLEY,** Spindles, Flyers and Pressers for Cotton, etc.
**GEO. SMITH,** Doffer Combs, etc.
**BRADFORD STEEL PIN MFG. CO.,** Comber Pins.
**THE PREMIER SPINDLE & FLYER CO.,** Halifax, Eng., Cops, Tubes and Spindles for Worsted, etc.

**Also Agents for**

**JOSEPH SYKES BROS.,** Hardened and Tempered Steel Card Clothing for Cotton.
**DRONSFIELD BROS., Limited,** Emery Wheel Grinders, Emery Fillet and Flat Grinding Machines.
**COTTON CORD & VELVET CUTTING MACHINE CO.,** Corduroy Cutting Machines, etc.

**Pick Classes, Leather Aprons, Patent Wire Chain Aprons, Etc.**

"The Best Machine on the Market."



Rise and Fall with Patented Independent Cylinder Motion.

Catalogue upon request.

USE THE

## HALTON JACQUARD

Original Fine Index Machines

Single Lift, Double Lift, Double Cylinder, Rise and Fall, Crossborder,

## THOMAS HALTON'S SONS,

Allegheny Avenue and C Street,

**PHILADELPHIA**

Representative
H. A. Forbes, Paterson, N. J.

JAMES H. CLARKE GEORGE E. COCKER

## COCKER MACHINERY COMPANY

## Improved Warping and Beaming Machinery

of all types for Cotton Textiles.

Improved Double Acting Nappers and Felters
For Cotton and Woolen Goods.

## Frankford, Penna.

WILLIAM FIRTH, Pres. THE FRANK B. COMINS, Vice-Pres. and Treas.

# AMERICAN MOISTENING COMPANY

**79 Milk Street, Boston, Mass.**

Received the HIGHEST AWARD on recommendation of the FRANKLIN INSTITUTE for

**"Simplicity and Originality of Design."**

Is the largest manufacturer of HUMIDIFIERS in the World. The last twenty years receiving the HIGHEST AWARD in this country and Europe for its AIR-MOISTENING SYSTEM. EIGHT GOLD MEDALS and others.

## The Only Perfect System of Air Moistening

**Has Been Adopted by the Representative Manufacturers of this Country.**

The only System adopted in the Textile Schools. Write for booklet "T" on Humidification.
Legal proceedings will at once be taken against infringers and users of infringements.

**J. S. COTHRAN,** Southern Representative, Trust Bldg., **CHARLOTTE, N. C.**

**The Kind That Give Satisfactory Results**

FIG.20.

**LANE**

**Canvas Baskets**

**Boxes AND Trucks**

FIG.22.

MANUFACTURED BY

**W. T. LANE & BROTHER,** OFFICE AND WORKS **POUGHKEEPSIE, N. Y.**

**Crabbing, Steam Finishing, Opening and Folding, Tacking, Sewing, Squeezing Machines**

**BIRCH BROTHERS, SOMERVILLE, MASS.**

**ALBERT BIRCH,** TEXTILE MECHANICIAN

**Bleaching and Napping Machinery**

**We have the Largest Exclusive Spool Manufacturing Plant in the World with a capacity of 10,000 High Grade Bushed Spools per day.**

Our splendid facilities guarantee prompt and immediate deliveries. Our equipment, than which no better exists, guarantees the highest grade of all hard wood spools of the highest quality procurable at medium prices.

**COTTON WARPER SPOOLS, COTTON TWISTER SPOOLS, WORSTED ROVE SPOOLS, CARPET CREEL SPOOLS, WORSTED REDUCER SPOOLS, WOOL WARP SPOOLS.**

*We can give one week deliveries on any order of the above kinds of spools.*

**Lestershire Spool & Manufacturing Co.,**
LESTERSHIRE, N. Y.

## Do You Need a Water-Proof Belt? If So, Buy An "AQUA."

There may be some more or less creditable water-proof belts now on the market that resist the deteriorating effects of moisture tolerably well for a short time, but it is mighty hard to find one that will not slip, or one in which the plies will not separate after long service.

*"AQUA" Water-Proof Belting* is water-proof, steam-proof and acid fume-proof. In addition, it has the pliability, wearing and lasting qualities of good leather belting. Our patent process of mineral tannage makes the leather impervious to water and weak acids but retains the original strength and pliability of the rawhide.

*Write For Circular No. 6.*

**THE SHULTZ BELTING CO.**
ST. LOUIS, MO.
NEW YORK. PHILADELPHIA. BOSTON.

## "NO WASTE"

Is the name of the only

**Seamless Hard Fibre Roving Can**

MADE FROM PURE CHEMICAL HARD FIBRE

NO SEAMS or RIVETS

Absolutely Smooth

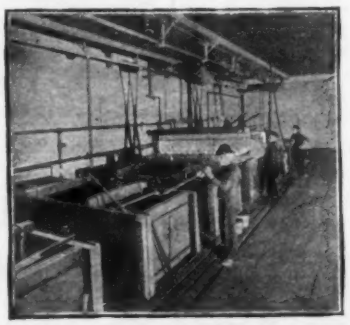
No Waste or Broken Ends

Write for prices.

MANUFACTURED BY THE
**Standard Fibre Co.**
SOMERVILLE, MASS.

## Waters' Dyeing Machine

This cut shows a new and useful machine patented by D. F. Waters for the dyeing of any color on Worsted, Woolen, Cotton and Merino Yarns.

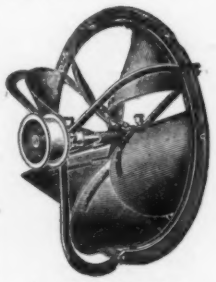


Being successfully operated by some of the largest manufacturers in the country.
The saving of labor will more than pay for a machine in a few months.
Capacity; 2,000 lbs. a day per man.
Machine can be seen in operation at any time at my plant where I have 13 in operation all the time.

**D. F. WATERS,**
53 and 55 Wister St., GERMANTOWN, PHILADELPHIA, PA.

# Is it better DRYING or VENTILATION that you need? THE BERRY WHEEL Gives both

This is our Berry Wheel the most effective agent for drying, eliminating steam and other impurities in the atmosphere.



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23 West First Street,
BOSTON.

# WILLIAM CRABB & CO.

Bagging Loom Reeds
Cotton Banding
Card Clothing in Leather
Card Clothing in Wood
Card Pins
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Comber Needles
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Drawing Frame Pins
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Feed Rollers in Brass Shells
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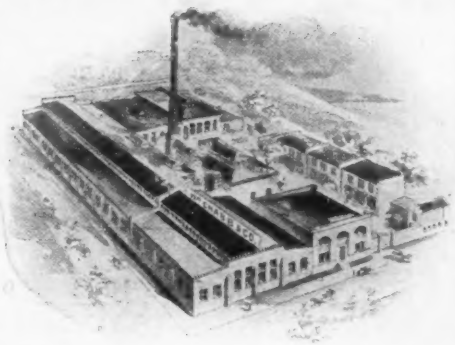
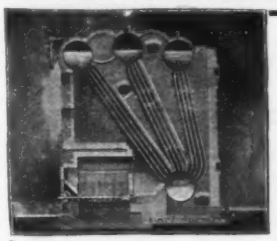


Gills and Gill Bars
Hackles
Hackle Pins
Jennie Pins
Needle Pointed Pins
Picker Teeth
Porcupines
Rivets
Rotary Gills
Spreader Pins
Steel Springs
Steel Wire
Tentering Pins
Waste Machine Clothing and Teeth
Weavers' Combs

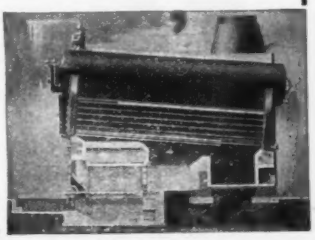
NEWARK, N. J.



## The Murphy Automatic Smokeless Furnace

Burns Slack with Great Economy

The Murphy can be installed under any type of fire-tube or water-tube boiler and to units of any size.

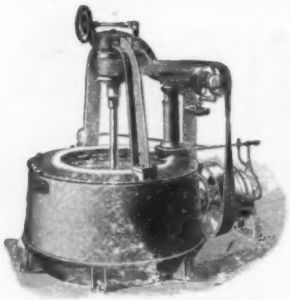


SETTING UNDER TWO TYPES OF BOILERS SHOWN HEREWITH

MURPHY IRON WORKS

DETROIT, MICH.

# Hydro-Extractors, Exhaust Fans, Dye Tanks and Tubs

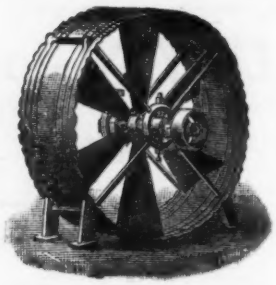


Adjusts itself to an uneven load, runs without vibration
Unusual capacity for high-class work

## Bridger Hydraulic Cutting Press

Send for Catalog

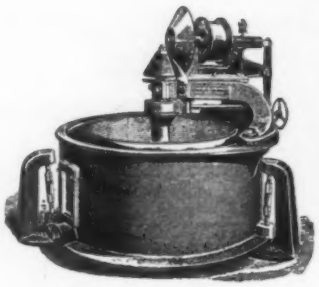
**Tolhurst Machine Works**
Fulton St., and 6th Ave., Troy, N. Y.



Moves more air than any other fan made. Very efficient under widely varying conditions. Noiseless and does not obstruct the light

# SCHAUM & UHLINGER, Inc.

**PHILADELPHIA**



Machine "C" Belt Driven

MANUFACTURERS OF

**Self Balancing**

## Hydro Extractors

**Electric, Engine and Belt Driven**

**Ask for Book Giving Full Particulars**

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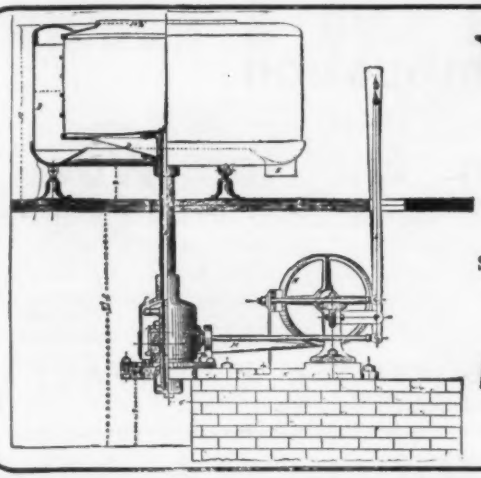
**IS ACTIVE AND UP TO DATE**

SUBSTANTIAL EQUIPMENTS NOW IN PROCESS.
REPEAT ORDERS ARE ENDORSEMENTS OF MERIT.
COMPARISON WITH OTHER WARP STOPS INVITED.
K-A STANDS FOR CERTAINTY—SAFETY—SAVING.

**K-A Dept. Mossberg Wrench Company**
**Central Falls, R. I.**



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Special Machines for Acid Work.

SHAFTING, PULLEYS,
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Incorporated 1864. Founded 1845.

109 Beach Street, Boston, Mass.

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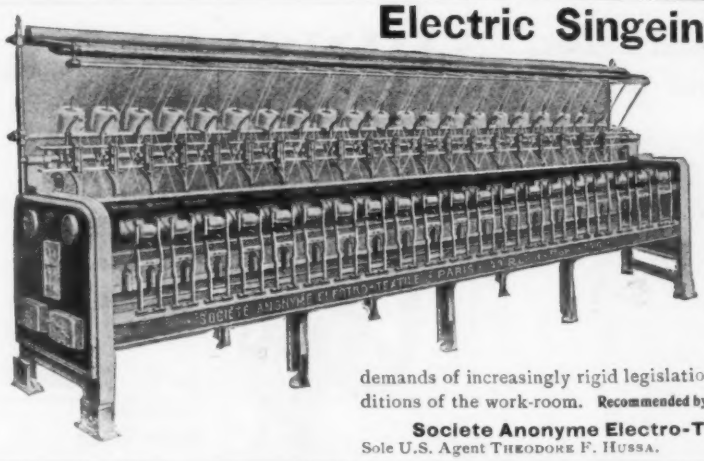


for Cotton Yarns, Worsted, Silk, Schappe, etc.

We lower your cost of production from 30 to 60%.
We produce yarns of finer quality.
We produce yarns of better color.
We give you cleaner, safer work-rooms.
Simple to operate.
The only machine that allows manufacturers to meet the demands of increasingly rigid legislation controlling the health conditions of the work-room. Recommended by the Commissioners of Labor in France.

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In Textile Mills is Our Specialty

15 Years Experience Highest References

MODERN LIGHTING SYSTEMS
EFFICIENT POWER PLANTS
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Contracting Engineers

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# Spontaneous Combustion

**eliminated by the use of**

## Breton Oil for Wool

Wool oiled with "Breton" can be stored for months without loss or danger of spontaneous combustion. Cards and spins as well as the day it was oiled. The use of "Breton" oil insures fine, even perfect yarn.

*Sold subject to trial and approval*

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**80 South St., New York**

Boston Fall River Philadelphia Works: Claremont, N. J.

## Here's a Time and Labor Saver for Your Mill

The New York Revolving Portable Elevator can be used wherever boxes, barrels, bales or heavy packages have to be piled up. Its saving in time, labor, and breakage quickly pays for it. Built in any size or height. Write for descriptive catalog.

**New York Revolving Portable Elevator Co.**
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## Mill Sewing Machines

**No. 9.—Portable Foot-Power Rotary Sewing Machine**

It is especially adapted for use in Cotton and Woolen Mills, Bleacheries, Print Works at the Printing Machines, in Dye Works, Cloth Rooms, at the Fulling Mill, Shears, Calendars, Gigs, Drying Machines, etc., or any of the different finishing processes in textile mills.

Manufactured by the

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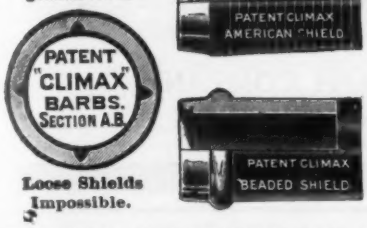
# WILSON & CO., BARNSLEY, Limited

Absolutely secure combination of Shield and Bobbin guaranteed.







Loose Shields Impossible.

**BARNSLEY, ENGLAND.**

Specialties: PATENT "LOCKFAST" and "CLIMAX" Shields. ENAMELLED CONDITIONING BOBBINS, Impervious to Steam, Moisture or Oil.

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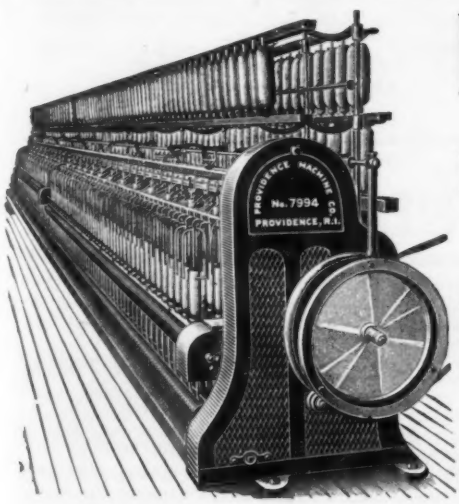
**For QUALITY OF FINISH**
**For QUANTITY of PRODUCTION**
**HAS STOOD THE TEST OF YEARS**

Sole Agents for U. S. A.

**Thomas Mayor & Son,** Olney Street, **Providence, R. I.**

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Manufacturers of

Improved Cotton Roving Frames

Improved Worsted Roving Frames

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# The Cost of Trade Marking

The Kaumagraph Method reduces the cost of legible Textile Stamping to a minimum.

It is rapid, economical, and the results on *any* fabric are *guaranteed* to be clear and uniform.

*Write us for samples.*

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**156 Fifth Avenue, New York**

**FOR SAVING LABOR EXPENSE**

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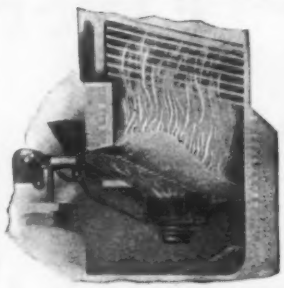
**BEAT THEM ALL**



Coal is supplied automatically.

The air supply is regulated by the Taylor System, it requires no attention.

The fire is leveled, sliced and cleaned automatically, the refuse slides at the rear onto a dumping plate operated from the front of the boiler without opening a door.

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15-18

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**POINTS OF SUPERIORITY ARE:**

**Lightness,** Has one third the weight of a cast iron pulley.
**Strength,** Has patented hub. Absolutely safe at highest speed.
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**Efficiency,** Has twenty per cent better adhesion than iron, which means longer wear for belting.

Oneida Steel Pulley Co.

Oneida, N. Y., U. S. A.

## We Challenge You

to find a bearing in your entire plant which Mica Flake Lubricant will not keep cool—or a hot bearing which Mica Flake Lubricant will not **cool while running!** Our challenge is contained in a **small package,** freely offered for demonstration purposes, of

**MICA FLAKE LUBRICANT**

Do you accept our challenge? Send for the test sample! **Mica Flake Lubricant is radically different, in principal and performance,** from Graphite or any other lubricting material.

**Keeps the metal bearing surfaces actually apart—reduces friction—cools hot journals—lengthens the life of your oil—saves costly delays and break-downs—increases operative efficiency.**

Mica Flake Lubricant is **pure Mica—pure white**—will not discolor or damage fabrics. **Write for literature prices, and the test sample!**

**THE UNITED STATES MICA COMPANY, 238-240 LaSalle St., Chicago, U. S. A.**

Made by

**Rodney Hunt Machine Co.**

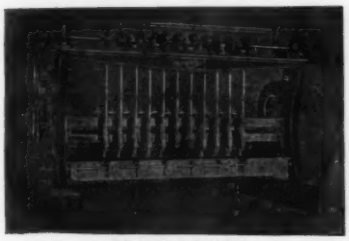
Boston Office, 70 Kilby St.

Works at Orange, Mass.

Send for Circulars

See Advt. of Water Turbines on page 236

**Improved Fulling Mills Washers & Dyeing Machines**



50-IN. MACHINE

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MANUFACTURER AND BUILDER OF

SEWING MACHINES

FOR ALL PURPOSES WHERE A NUMBER OF ROWS OF SEAMS ARE REQUIRED

BUILT WITH ANY REQUIRED NUMBER OF NEEDLES

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**General Mill Supplies**

85% Pure Magnesia Steam Pipe and Boiler Covering

The

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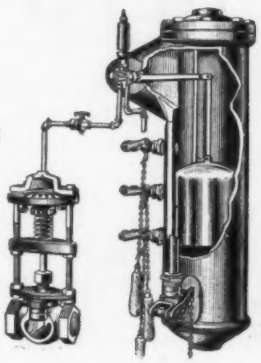
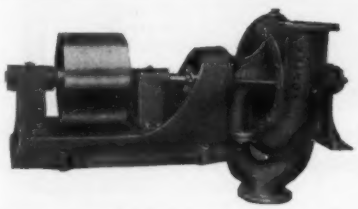
Safety Automatic Feed Water

**Regulator**



New England Office: 103 Bedford St., Boston, Mass.

**Berry Engineering Co., Chester, Pa.**



**Centrifugal Pumps**

We build them in accordance with the most advanced practice for all requirements. Consult with us on any pumping proposition.

**Lawrence Pump and Engine Company**

P. O. Box 70. Lawrence, Mass.

*Catalogue T. R. now ready.*

"The After Effects Are Pleasant."

## If Quality Counts

and ***Results*** are what you want, refuse to accept a cheap substitute, and insist that your Dealer gives you the kind of ***STEPHENSON Bar Belt Dressing*** that is made for your particular belts. Be sure the ***Man with the Cog-Wheel Face is on each Pound Stick.*** And don't confuse the Brands.

**RED** Label Brand for Leather Belts
**GREEN** Label Brand for Rubber Belts

**Stephenson Mfg. Co., Albany, N.Y.**

Write for sample of STEPHENSON Belt Cleaner.

Cooper Hewitt Lamps

FOR TEXTILE MILLS

**The weaver in a silk mill finds the Cooper-Hewitt Lamp of special advantage**

**because of the great volumes of light it throws not only on the goods being woven, but directly into the loom harness. There is an entire absence of black shadows.**

*See Catalogue No. 60.*

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**220 West 29th St., New York.**

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IS A NECESSITY OF COURSE, BUT WHY HAVE MORE THAN YOU NEED.

WE CAN SHOW YOU A BIG

**SAVING**

**in handling merchandise**

AND GUARANTEE IT TOO.

**JUST GIVE US A CHANCE**

## Economy Engineering Company

**58 to 66 N. Jefferson St., Chicago**

# WATER TOWERS

IRON OR STEEL

**for Fire Protection and Domestic Service.**

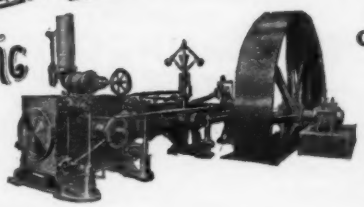
Built in all sizes.

Write for catalogue.

Plans and prices cheerfully given.

**Tippett & Wood,** Phillipsburg, New Jersey

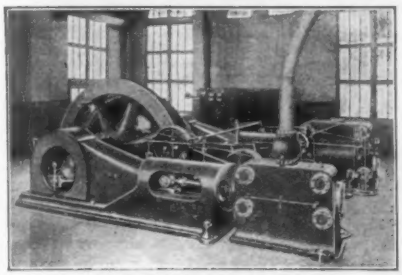
THE IMPROVED FISHKILL CORLISS ENGINE
BUILT BY THE FISHKILL LANDING MACHINE CO.,
FISHKILL ON HUDSON N.Y.



For all power purposes
where high economy and
close regulation is required.

Cylinders & Valve Chests rebored in place.

General engine repairs.



Rice & Sargent Corliss Engines
Heavy Duty Type
NOTED FOR
RELIABLE SERVICE,
LOW STEAM CONSUMPTION,
LOW FRICTION LOSSES and
SPEEDS HIGHER THAN OTHER CORLISS TYPES.
Designed and built by
PROVIDENCE ENGINEERING WORKS
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PREVENT ROT AND DECAY
FLOORS, SILLS, JOISTS, TRESTLES, DYE TANKS, VATS
or other Woodwork can be successfully preserved
by applying Avenarius Carbolineum, the
great German Wood Preservative.

Applied with brush or by dipping Always ready for use. On the market since 1875.
TELL US WHERE YOU ARE HAVING TROUBLE AND WE WILL MAKE A RECOMMENDATION.
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The Best That Money Can Buy
SPINNING RINGS.
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Established 1870

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Builders of Improved

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for WOOLENS, WORSTEDS, FELTS, etc.

Built Upright or Horizontal with Low Down Feed

Ventilating Fans a Specialty

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**Key Seating Attachment**

FOR

**Whiton Gear Cutter**

We offer an attachment for use with our Gear Cutting Machine, to cut key seats for the Woodruff System of Keying. Write for description, circulars and price.

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**EXCELSIOR WOOL OIL COMPOUND and COTTON SOFTENER**

**It Pays to Buy Your Supplies from the Makers**

The Excelsior Compounds are the best lubricating and softening products for wool, cotton, wool and cotton mixed. Eliminates the scouring process and effects large saving in time and soap. They will not gum in the cards.

Write for prices and particulars.

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Established 1841 CINCINNATI, O.

**LARD OIL**

Soap Tallow Emulcene Wool Oils, Etc.

**Federal Welded Frame Lockers**

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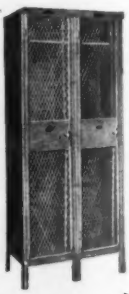
**Fire-Proof, Germ-Proof, Thief-Proof**

Besides the protection they give they are worth many times their cost for the improvement they make in your plant, and the increased good-will of the employees for whom you install them. Try a few and note the results.

STEEL { Factory Equipment / Office Furniture | Clothes Lockers / Filing Devices } STEEL

Built in sizes and styles for every need. Send for catalogue and prices.



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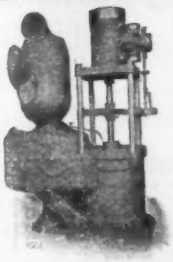
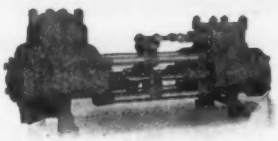
**INDIANAPOLIS, IND.**

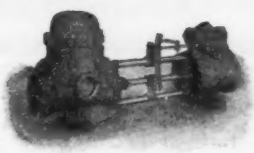
DUPLEX PUMPS, SIMPLE PUMPS
ATLANTIC BOILER FEEDERS
JET AND SURFACE **CONDENSERS** ELECTRIC PUMPS BELTED PUMPS, Etc.



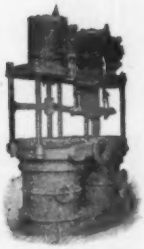
VERTICAL AIR PUMP AND JET CONDENSER



DUPLEX DURABLE PUMP



SIMPLE PUMP



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A. H. HOWARD, Pres. ESTABLISHED 1866. HERBERT MIDGLEY, Supt.

**A practical test will convince you we can furnish the**

**BEST**

**COTTON, WOOLEN and WORSTED**

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You'll Get More Carding—
Have Better Yarn—
With Less Waste—

## If You Use the Henderson Card

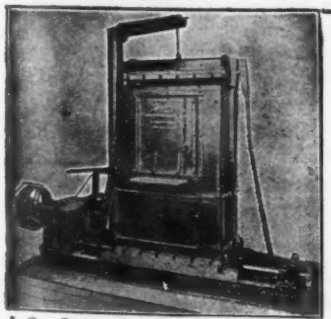
It gives greater strength and production than any other system.

## James H. Whittle Co.

Successors to the Cleveland Machine Works

Owners and manufacturers of the celebrated *Henderson Card* for Wool, Worsted, Cotton, Waste, Flax and asbestos. Also manufacturers of **All Kinds of Woolen Machinery.**

**150 Harlow Street, - Worcester, Mass.**



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# Minnich Baling Press

**for all kinds of products.**

Must turn out more bales with less labor and power than any press in the market.

*Send for circular.*

## Minnich Machine Works,

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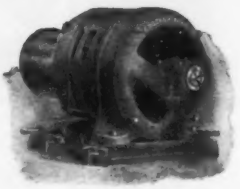
**C-W** squirrel-cage induction motors make good in textile mills. So do **C-W** engineers. See Bulletin 105 Y.

Crocker-Wheeler Company, Ampere, N. J.



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Liberal Discount to Dealers

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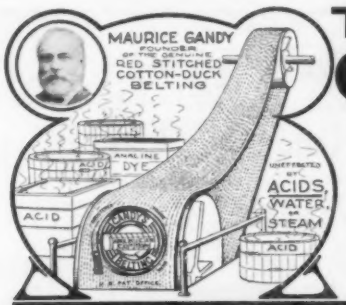


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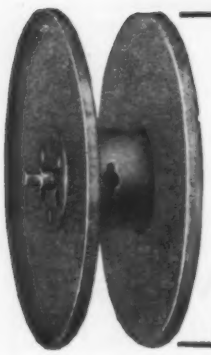

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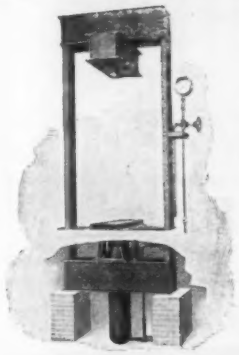

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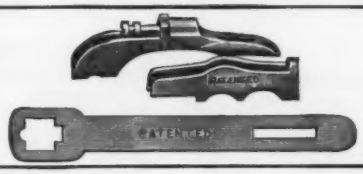

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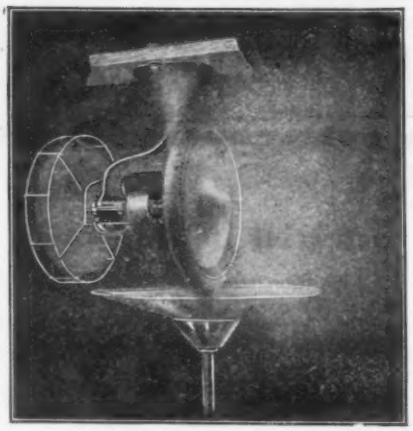

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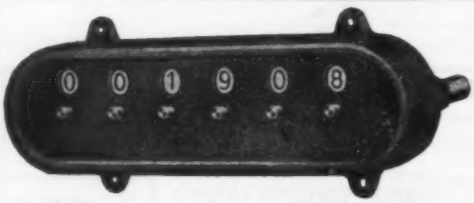


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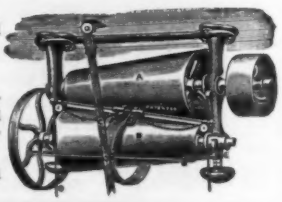

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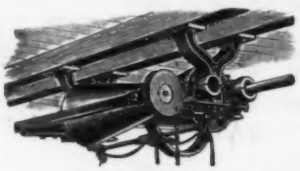

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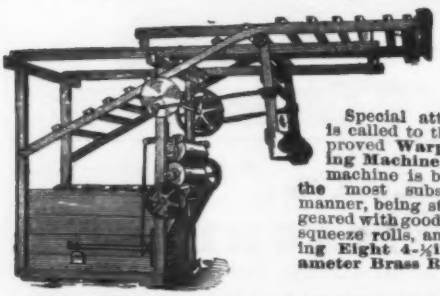

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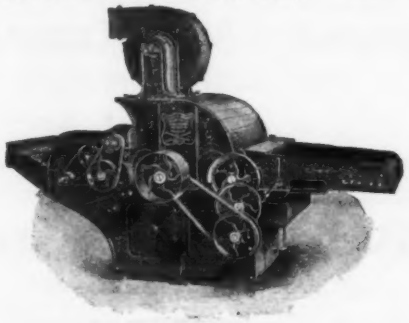

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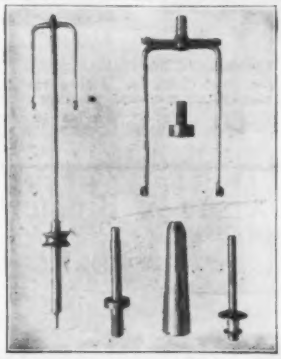

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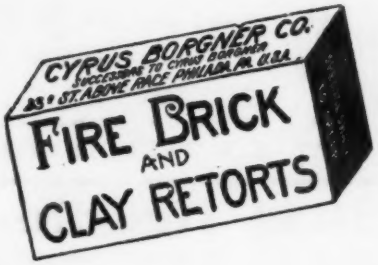


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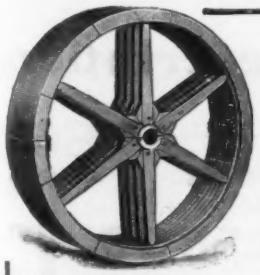

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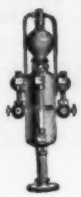

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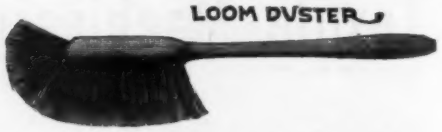


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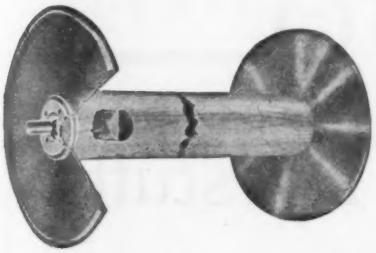

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## Correspondence.

We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

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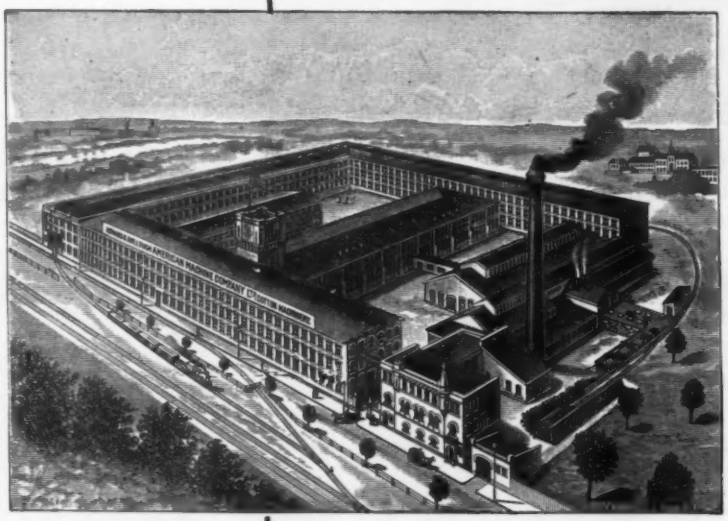

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# TEXTILE WORLD RECORD

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**The Textile World and Textile Record.**

VOL. 37 (NEW SERIES.) August, 1909 No. 5

# Monthly Comment.

### The Payne Tariff Bill.

When this issue went to press the Payne tariff bill, as reported by the conference committee, had been passed by the House of Representatives by the close vote of 195 to 183 and was awaiting a debate and vote in the Senate. An analysis of the changes in the complicated schedules of this act must necessarily be deferred until a later issue. The tariff on cotton goods has been raised above the Dingley rates, the conference committee having made but slight reductions from the rates in the Senate bill. The conference rates on cotton hosiery were the result of a compromise between the increases made by the House and the Dingley rates which were restored in the Senate draft. The new rates, compared with the present tariff, are as follows:

| Value | Dingley Per doz. | | Payne Per doz. | |
|---|---|---|---|---|
| Not over $1.00 | 50 cents and | 15% | 70 cents and | 15% |
| $1.00 to $1.50 | 60 " | " 15% | 85 " | " 15% |
| $1.50 " $2.00 | 70 " | " 15% | 90 " | " 15% |
| $2.00 " $3.00 | $1.20 | " 15% | $1.20 | " 15% |
| $3.00 " $5.00 | $2.00 | " 15% | $2.00 | " 15% |
| Over $5.00 | | 55% | | 55% |

The classifications and rates in the silk schedule have been reorganized generally and it is doubtful if the framers of the new silk tariff know what the exact effect of their work will be. It will be necessary to await the result of the enforcement of the new schedule before it can be determined whether it contains defects calling for remedy. The attention given to the cotton and woolen schedules during the last eight months has resulted in the silk schedule having been framed and adopted without the discussion that would otherwise have taken place regarding it.

Schedule K, relating to wool and wool goods, is re-enacted with but few changes. With the exception of the tariff on tops these few changes are not noteworthy. The new tariff on tops is as follows:

375. On combed wool or tops, made wholly or in part of wool or camel's hair, valued at not more than twenty cents per pound, the duty per pound shall be two and one-fourth times the duty imposed by this schedule on one pound of unwashed wool of the first class; valued at more than twenty cents per pound, the duty per pound shall be three and one-third times the duty imposed by this schedule on one pound of unwashed wool of the first class; and in addition thereto, upon all of the foregoing, thirty per centum ad valorem.

That these rates on tops afford ample protection to the worsted combing mills is shown by applying the Payne rate to worsted tops costing 24 cents a pound at Bradford. At this value the new duty would be:

| | |
|---|---|
| Specific 11 × 3 1/3 = 36 2/3 | 153 per cent. |
| Ad valorem | 30 per cent. |
| Total | 183 per cent. |

Such a rate is, of course, prohibitive, as was the Dingley rate, and for that reason the new tops paragraph will have no effect. That a change of any kind was made was undoubtedly due to the prominence given to the tops tariff during the past eight months. This is shown by the fact that the Payne law contains no special provision regarding the tariff on roving, which under the famous blanket clause (Dingley 364 and Payne 376) remains dutiable at the rates imposed on finished cloth. This paragraph is as follows:

376. Wool and hair which have been advanced in any manner or by any process of manufacture beyond the washed or scoured condition, not specially provided for in this section, shall be subject to the same duties as are imposed upon manufactures of wool not specially provided for in this section.

With the passage of the Payne bill by Congress and its approval by the President, both of which results appear probable at this writing, another stage in tariff revision is reached, during which the law is put into effect and receives the approval or disapproval of the people. This is the last and most critical period in the making of a tariff bill. If it meets with popular approval in the months following its enactment into law it obtains a lease of life which ensures its having a fair trial. But if during the first months of its existence as a law it falls into popular disfavor, it is likely to be short lived. Whether the Payne bill is to be long-lived or not can be determined with reasonable certainty from the trend of public opinion during the next twelve months.

### International Short Time.

Owing to the high price of cotton and the failure of the yarn market to respond to the advance, spinners of American cotton in Lancashire have agreed to run their mills only four days a week, from July 10 to September 27. The following appeal to the trade advocating this short time policy was issued by C. W. Macara, president of the English Federation:

Manchester, July 2, 1909.

Sir: In connection with the organized curtailment of production decided on at today's meeting of the English Federation, it is well to bear in mind that since the American crisis in the autumn of 1907, which spread its wave of disaster all over the world, each cotton-using country has, on the advice of the International Federation, worked organized short-time at one period or another; the greatest amount of short-time was adopted in the United States, where trade is now improving.

The following are particulars of the development of the present short-time movement:

Austria is curtailing its production to the extent of one-sixth during six months, and is endeavoring to increase this reduction to one-fourth.

Italy: This country has lately stopped one day per week during ten weeks. A meeting will be held during the next few days to decide on a continuation of short-time.

Belgium: A meeting held yesterday decided to recommend the mills to stop one day per week for twelve weeks.

Portugal is working short-time slightly more than the curtailment decided on by the English Federation.

Germany: The Rhenish Westphalian cotton spinners have proposed a stoppage of 154 hours to the other German associations.

Meetings are being held in the other countries.

It must be remembered that the cotton industry on the Continent is not so centralized as in Lancashire, and that negotiations take, therefore, longer than in England. On the Continent the consumption of cotton per spindle is considerably greater than in England, as they spin mostly coarse counts.

I consider that the present crisis is one of the worst which the cotton trade has ever experienced, and if the present measure becomes universal, I am convinced we shall soon again have normal conditions.

Yours, etc.,
C. W. Macara,
Chairman, International Federation

The inference in the above statement that the spinners of the United States have run their mills on short time since the panic of 1907, by the advice of the International Federation, is important if true. Mr. Macara is, however, entirely mistaken. His mistake is, however, not unnatural. The Lancashire environment is responsible for it. There within a small circle are found one-half the cotton spindles on earth, all the important allied industries needed for the building of mills and machinery and for the production of the necessary supplies, and within the same little circle are concentrated the resulting commercial activities with their focus in the Manchester Royal Exchange. The industrial, commercial and social systems of this community rest on cotton manufacture. A man in Lancashire is led irresistibly to the conclusion that he is at the

very source of the world's cotton trade, and that on Lancashire depend not only the cotton growers for their market, but the world's consumers of cotton goods for their supply of cotton merchandise. Even the visitor to Lancashire falls under this influence. How much stronger must be the conviction on the part of those who pass their lives there. And the strange idea on the part of Mr. Macara that American spinners have been running short time by the advice of his Federation is, doubtless, due to the Lancashire idea that the very fount of power in the cotton trade is located within the borders of Lancashire.

These, however, are all human errors. The running time of American cotton mills has been regulated by their managers, before and since 1907, without a thought as to the wishes of the European Cotton Federation. And if those in Lancashire who believe the contrary will take a broader view of the international cotton trade they will find that they are wrong, not only about short time in the United States, but also about the position of Lancashire in that trade. The vast cotton manufacturing industry of that English County depends, as does the business of every cotton mill, no matter where located, on the supply of raw cotton and the demand for cotton goods. The Lancashire industry is feeling now, as it has in the past, the pinch of a disarrangement between the supply and the demand. Short time there may palliate but it cannot cure the trouble. The danger to Lancashire is found in the expansion of the cotton industry in two directions: First, in such countries as Italy, India and Japan, where lower wages produce cheaper goods, which are driving Lancashire cottons from neutral markets. Second in the United States, where a large population, with a greater consuming power, due to higher wages behind a tariff wall, is absorbing a rapidly increasing proportion of the cotton supply.

Under these conditions nothing is more certain than that a cotton spinning industry of 50,000,000 spindles, depending on foreign countries for all of its raw material, and for a market for 80 per cent. of its products, should suffer as Lancashire is suffering now. It is useless to prescribe preventives for this difficulty, for no one heeds the advice. Mr. Macara warned the English trade against the danger of building so many spinning mills a few years ago, but the building went on just the same. As for remedies they are obvious and will be applied with or without advice when the pinch is felt, as it was in 1904, and as it is in 1909.

### Profits in the German Jute Industry.

Despite the business depression last year the jute mills in Germany report a material increase in the earned dividends, as compared with 1907. Twelve incorporated companies with a total capital of 21,422,000 marks paid 2,829,500 marks to their stockholders for 1908, being 13.2 per cent., against 11.6 per cent. in 1907. It is stated that the drop in raw material prices came when the mills were carrying small stocks, and that they were able to fill orders taken at high prices with goods made from the low-priced jute.

### Textile Education in North Carolina.

We have received a collection of very attractive samples of fancy cotton goods woven in the Textile Department of the North Carolina College of Agriculture and Mechanic Arts, West Raleigh, N. C. They reflect great credit upon both students and instructors and can be seen at our Boston office by any one interested. This textile school is doing excellent work in training superintendents, overseers, second hands, chemists and salesmen. One of its students, G. G. Simpson, of Norfolk, Va., received the student's medal from the National Association of Cotton Manufacturers last year. Knitting machinery has recently been added to the equipment, the following firms making donations of machines: Scott & Williams, Philadelphia, Pa.; Geo. D. Mayo Machine Co., Laconia, N. H.; Wildman Mfg. Co., Norristown, Pa.; Hemphill Mfg. Co., Pawtucket, R. I.; Beattie Mfg. Co., Cohoes, N. Y.

### Heating Wool Sorting Rooms.

The action of the British inspector of factories in requiring wool sorting rooms to be heated to a reasonable temperature, say 50°, has brought out a protest on the ground that the heating of sorting rooms would result in the evaporation of the moisture in the wool. Following is an abstract of the protest, which was addressed to the Home Secretary:

The effect of the enforcement of the heating regulation in wool warehouses would be serious and far-reaching, inasmuch as the drying up of the moisture contained in the wool would cause a loss in weight and value between the times of buying and selling to which no wool merchant could afford to be subjected. Moreover, as Bradford wool warehouses were not built in such a way that they could be readily heated, wool merchants who resold the wool they bought after matching and classification would be absolutely unable to continue that part of their business. In a large number of warehouses only male adults were engaged in the sorting of the wool, but in most warehouses there were a few protected persons engaged in some subsidiary process more or less incidental to sorting, such as conveying the wool from the sorting to the packing room, packing, and the sewing or mending of the packing sheets. To consider such warehouses as workshops to which the temperature clause was applicable on that account was unreasonable and altogether unnecessary.

### The German Worsted Spinning Industry.

Returns from 26 worsted corporations in Germany, of which only one is reported as engaged in weaving, show that the worsted spinning business in that country was hit hard by the business depression following the panic of 1907. These 26 companies, with a capital of 66,610,000 marks, report an average dividend payment of 6.4 per cent. for 1908, as compared with 9.8 per cent. in 1907, the total dividend payments amounting to 4,281,000 marks for 1908, and 6,661,000 marks in 1907. The decrease in the earnings was due not only to the fall in yarn prices and the rise in mill cost by reason of the falling off in production, but also to the shrinkage in the value of raw wool and material in process which the mills had on hand in the early months of last year. Six of the companies passed their dividends in 1908. One of them was able to pay 15 per cent., the same rate as for the preceding year, because of the possession of a large reserve.

### Cotton Thread in Jamaica.

The following report on the cotton thread trade by F. Van Dyne, the American consul at Kingston, Jamaica, has recently been published in the consular reports under the caption, "Opportunity for American Manufacturers:"

The cotton thread used in Jamaica comes from England. The agency for the distribution of the thread in the West Indies is in Barbados, but owing to the prevalence of yellow fever there the dealers here cannot, at the present time, secure their usual supply, the result being that it is impossible for customers to get the sizes and quantities of thread required.

As cotton is grown and thread is manufactured in the United States, only five days distant from Jamaica, it would seem that American manufacturers could successfully compete with thread makers whose product is manufactured nearly three times as distant in point of time, and distributed from another island in the West Indies far out of the course of prompt delivery and economical freight rates. A proper effort on the part of American manufacturers should secure this market. The prices paid for cotton thread here and the prices at which it is retailed, are as follows: 400-yard spools, 79 cents per dozen wholesale, 8 cents each retail; 150-yard spools, 32 cents per dozen wholesale, 3 1/2 cents each retail; 100-yard spools, 22 cents per dozen wholesale, 2 1/2 cents each retail.

This information as to the retail prices of cotton thread in Jamaica is interesting and confirms the results of the investigation made by the Textile World Record two years ago. Consul Van Dyne's idea that there is any opportunity for American thread makers to dispose of their product in Jamaica is, however, wholly mistaken. The thread, on which he quotes prices, is in all probability supplied from Great Britain by the same combination of mills, the J. & P. Coats Co., which controls the cotton thread trade in the United States.

In 1907 Germany imported 933,938,168 pounds of raw cotton, valued at $113,391,530 and the exports of cotton manufactures amounted to 151,916,167 pounds, valued at $97,002,136.

The value of woolen manufactures imported into Canada in 1897 was 7,094,909, and ten years later, in 1908, they had increased to $21,213,234, an increase of $14,118,325, or 199 per cent.

## MORE IMPORTANT THAN THE TARIFF.

(From the Kennebec (Me.) Journal.)

DOG VERSUS SHEEP.

The New York Sun has discovered that Virginia doesn't rival Australia as a sheep raising country because the citizens of Virginia prefer their profitless dogs to profit bearing sheep. This makes the Sun righteously indignant. It also waxes sarcastic. After dwelling briefly on the advantages to be gained if Virginia would cover her hillsides with woolly lambs, the Sun remarks:

> There is only one thing to prevent, and that is the mere mangy yellow dog. But let some incautious statesman say one word about the regulation of dogs and Virginia, from Norfolk to Danville and from Winchester to tidewater, rises as one man in explosive protest. Every farmhouse becomes a bristling fortress. Every farmer a truculent, swashbuckling warrior. Sheep are all very well. Everybody loves to see the little lambs frisking about and the flocks grazing on a thousand hills. Everybody knows, moreover, that it means easy money for the grower, pianos and automobiles and fashion journals and all the rest of it for the family; but there is old Heck sprawling in the sun, snapping at the flies, chasing fleas up and down his leg, and distilling bad smells, for the delectation of the children. Old Heck that runs under the kitchen stove and growls when a stranger enters the gate, and ranges far and wide by night in search of unresisting prey. Kill Heck, or keep him tied up in the corn crib, or do anything else calculated to curb his instincts or bridle his activities? Not much. Rather than that, the deluge.

Human nature is much the same in Virginia that it is in Maine. Maine has tried every time her Legislature has been in session during the last 40 years to secure some kind of a law that would make the owners of dogs that kill sheep, responsible for the depredation.

Every time that a young man asks an older one why it is that Maine don't raise more sheep, he will get a reply that the tariff prevents it. Poor old tariff. If it could but speak in its own defence and tell the truth about the matter. So far as sheep are concerned all the tariff that could be piled on by the strongest protectionist or absolute free trade with the government subsidizing foreign wool, wouldn't have half the effect on Maine's flock of sheep or on the tendency of the Maine farmer to raise sheep that a vicious dog has.

If there was only a way to submit to a Legislature a certified list containing the name of every farmer in Maine who had either been driven out of, or was prevented from entering upon the sheep raising business because of his neighbors' dogs, the Legislature would need no further argument for the passage of a law which would keep dogs confined. Maine is a prosperous State already, but she would be doubly prosperous if the State was swept clean of every dog that chases sheep. Sheep raising is a great industry and a profitable one. Why not swap our dogs for sheep and pocket the difference?

---

## "STYLES AND STYLING IN MEN'S WEAR FABRICS, WITH SPECIAL REFERENCE TO WOOLENS."

*MR. RICHARD A. STRONG.*

(An address delivered at the eighth annual banquet of the Alumni Association of the Philadelphia Textile School.)

In addressing you on "Styles and Styling of Men's Wear Fabrics," I am speaking on a subject on which you are vastly better informed—technically—than I am. You are the trained designers, while I stand merely for the merchandising of the fabrics that you create. Thus we are closely linked, although we view the subject from a somewhat different standpoint. It is from the merchandising point of view, then, that I will speak, and will confine my remarks almost entirely to men's wear woolens. It would be of little present interest to you, I take it, to trace the history of woolen fabrics. That phase of the subject might, at another time, be made one of great interest. Suffice it to say, however, that wool goods, as distinguished from worsteds, date back to the earliest period of textile manufacture.

Developments in worsted manufacture have been enormous during the last few years, but the history of the cloth does not go back any great distance, and it is not difficult to trace the steps which have brought it into such general prominence. In the early days of woolen manufacture, it was a very simple matter to style these fab-

rics. The most popular things, which, in fact, embraced the bulk of the business, were the hairline and the pincheck, which were practically staple in character and did not present an opportunity for individuality. It is a fact, not generally understood perhaps, but, nevertheless, just as true, that greater talent is required, both on the part of the manufacturer and the styler, to produce satisfactory results in woolen goods than is necessary in the case of worsted goods. Since the introduction of worsteds, the contest for supremacy between the two fabrics has been an ever-varying one,—both in our own country and in Europe. In the last few years there have been periods when the demand has been almost entirely for one fabric, to the exclusion of the other. Among the best judges, however, the belief is generally expressed that in a comparatively short time, both fabrics will receive their due recognition, and that the pendulum of fashion will not swing violently first in one and then in another direction.

Worsteds, by their very nature, being clean and smooth, produce a neater and finer effect than woolens, and are naturally more desirable in garments, where such effects are sought for.

Woolens, on the other hand, especially cheviots, are capable of a much broader style treatment. They lend themselves to bolder, smarter designs, and are by their nature, in turn, better adapted to business and outing suits, where distinct character of style is wanted. There is no need for me to tell you of the all-important part which style plays in textile manufacture, nor how necessary it is to perfect the process of styling to the highest possible degree of efficiency. It is the one department of a modern mill or selling organization, which means success for the product and satisfactory returns on the financial investment; or, conversely, may spell lack of recognition and eventual ruin to an otherwise well-balanced and evenly organized institution. It is the perfection of the styling department which enables the small manufacturer, with limited capital and hampered by restrictions, to compete successfully in the open market—to gain a reputation—and to maintain an individuality, which opportunities for the cheap purchase of machinery, supplies and raw material and the practice of other economies, will fail to dislodge.

When I first started in business, about 1880, cheviots, as understood today, were practically unknown in this country. At least three-quarters of the goods manufactured were woolens of neat designs—the other quarter were worsteds, and they were mainly staple piece-dyes. In those days, people traveled but little—(a trip to Europe being a matter of note)—and sports and outdoor life had little, if any, influence on the character of clothes that men wore. Today, however, a large part of the population travels; and a man who does not indulge in some form of out-of-door pursuit, such as motoring, golf, or the enjoyment of country places, is an exception, and this change in the interest and life of the people has brought about a demand for new fabrics and new styles. To meet this demand, we naturally turned to those cloths and fabrics which Great Britain had found best adapted to these pursuits, namely, flannels and cheviots—and here let me state that cheviots, as you will note by their very name, indicate a Scotch cloth—taking its name from the Cheviot Hills.

When first introduced, the use of large yarns and bold designs impressed us as being somewhat loud, with a consequent very limited demand. But as the eye became more accustomed and the use more general, we were educated, and the possibilities for new effects for more general or daily use, soon developed; but at this point we made an important discovery, namely, that we could not take the situation as we found it, or, in other words, adopt the heavy cheviot, which Great Britain had found satisfactory.

A new element entered into the problem—and that was climate, which, in our country, demanded a lighter weight, and this factor has probably had a greater influence on designing than any other one circumstance.

The effects which were produced in the heavier cloths of England were not possible in the lighter weights that we require, and, consequently, new cloths and new effects had to be worked out for this country, which have resulted in the development of what we might term the "American cheviot," and an American school of design along somewhat independent lines. It is not only correct in theory, but in practice we find that year by year we are able less and less to follow the fabrics of Great Britain, both on account of the weight of the cloths and also on account of the temperament of our people. This applies not only to the character of the cloths, but also to designs and shades of color as well. As an illustration, Great Britain often uses designs, especially in their outing clothes, where the filling weave shows stronger than the warp, creating what we term a "runaround." In our market, such an effort is absolutely unacceptable. Again, the strong green shades, which in England were recently quite generally worn, met with but a meager reception in this country.

It was but a few years ago when all that was necessary to do was to secure an ample number of styles of the best foreign makes, practically reproduce them at our mills, and presenting the result to the trade, feel reasonably confident of selling the product of our looms. That day has absolutely gone by. How many successful mills are there in this country who allow these foreign samples to exercise more than a passing influence on the character of the line that they produce? I do not believe that there is one. Many of the samples, too, that we see in foreign collections which we recognize as of English make and which we assume represent goods made for home consumption are, in reality, made for markets that have no bearing on our own; such, for example, as the countries of South America. We all endeavor to see the advanced styles of the leading importing houses; we all hover around the shops of the leading tailors to ascertain what their ideas are on advanced fashions. But the results that we achieve from that source are almost of a negligible quantity.

The question is often asked, with varying answers, as to who, or what influence dictates fashion. For my own part, I do not believe that any individual or given set of individuals, can dictate what styles or colors will be worn in a future season. Certain influences, such as the death of a sovereign, may create a demand for black and white, as it did at the time of the death of the late Queen Victoria, and even the coronation cloth met with a slight vogue immediately following. But the change of fashion, both as to fabrics, styles and colors, seems to follow along the lines of a national sequence which amounts to what we might term a sub-conscious demand on the part of the wearers themselves. How can we otherwise account for the craze that sometimes, like spontaneous combustion, breaks out simultaneously in all parts of the country, and, often in the middle of a season, calls for a new shade or character of design that has not been anticipated by any of the most wide-awake of the manufacturers, nor previously foreseen by the buyers? This is a condition which has repeated itself many times and can be accounted for only by the fact that the people, as a whole, tiring of a given fabric or color, demand that which might be regarded as next in sequence, and it is for the brightest manufacturer to anticipate what this succession naturally would be and prepare himself accordingly.

"There is nothing new under the sun" was the statement of a man who lived four thousand years ago, and whose glorious apparel, we are taught to believe, rivaled the production of the most ambitious designer of today, even one whose chiefs call upon him to produce effects for "fad clothes." Is there, however, really nothing new to be looked for in designs for men's wear fabrics? There are, to be sure, great limitations to the weaves produced by the modern four-box loom, and we doubtless have exhausted all of these weaves long ago, as we have sounded all the notes of the piano. Yet we shall continue to produce new combinations, new harmonies, as long as the demand for them exists. We are apt to say that history repeats itself, and

that the style of today is simply a resurrection of a fashion of a decade or more ago. To a certain extent that is doubtless so. The craze for a certain color, notably brown, or even green, will find its counterpart a given number of years previously, and yet you will find that it was differently treated at that time, the design and even shade of color varying.

That fact was strongly illustrated to me a few years ago, when one of our customers showed me an interesting collection of sample books he had acquired, which showed the total importations, covering a number of years, of several prominent cloth importing houses who had afterward gone out of business. Going through these pages, it was interesting to trace the change of demand from one character of cloth and design to another, and, although every conceivable weave was illustrated, there was not one sample of the entire lot which, duplicated at that later period, would have been salable. Each revolution of the wheel of fashion calls for a new treatment.

The very essence of success, it would seem to me, in producing a new line of goods, is to first ascertain what character of design will be in vogue, and then treat your fabrics along these accepted lines, but with an individuality all your own. Among the first blankets that you will execute for a given season you are bound to find some idea that stands as an oasis among a desert of useless effects. Take this idea and develop it to the maximum, and the result will be that you will have produced a lot of samples that will be as new to the trade as they are new to you—that will meet with the reception that all new and good ideas receive at the hands of our American merchants, whose very watchword is "newness." Some years ago, the early indications pointed to the fact that the woolen cloth which would be in greatest demand for the following season would be a homespun. Now, I know of no fancy cloth more difficult to lend newness to than this same homespun, which, as its name implies, is a cloth of the simplest possible construction, limited both in weaves and in designs.

The situation which confronted the mill that I am now identified with was to follow the lead of fashion and produce a homespun—but to produce a homespun that was going to be distinctly different from those shown by other mills. The problem was not a simple one. In thinking over the situation, some one finally suggested the use of silk in this fabric, which, up to that time, was entirely unknown in this particular cloth. The result was all that could have been wished for, and demonstrated that even in a field as narrow as that on which we were working, there were opportunities for originality; and a remarkable coincidence in this connection was that one other mill only—a Scotch mill—solved the problem for the same reason in identically the same manner. It is easier to copy the other man's styles than, by hard work, to originate our own; and we are all inclined at times to travel along the lines of least resistance. But the old adage of "honesty being the best policy" is well illustrated here, for not only must the copies be sold at prices lower than the masterpiece, but what is more serious to the designer, his ability to originate is steadily weakened.

Do not assume that the success of one season will mean the success of the season following, nor duplicate the styles that made the previous season a success. Our business is like that of a gardener. In our good reputation we have fertile soil to work in, but our product is not self-sowing and each season we must plant anew as at the beginning. Any intelligent man, with a good technical education, and a knowledge of how to handle men, may become a successful mill superintendent, but no man, no matter how great his technical knowledge, can become a successful designer, unless he is so endowed by nature.

An artistic sense is as essential to him as it is to a painter or sculptor, and without that talent he becomes a mere copyist. Training will indicate and develop the particular thing that each man can do well. As water cannot rise above its source, so each of us must find his own level. Do not strive

for that which you know is out of your sphere, but rather develop to the utmost that character of work which you are mentally best equipped to do. Stamp your own strongest individuality on all your work, and soon the world will recognize both, and it and you will receive the full compensation to which your efforts entitle you.

# Seasonable Fabrics.

### DRESS GOODS.

Conditions of the dress goods market continue to show improvement. The manufacturers and jobbers are closing the summer with exceptionally clean stocks. A great many of these houses have closed out their entire lines of light weight fabrics. Early fall shipments are being made against orders that were booked when the fall sample lines were shown. A great many dress goods buyers are in the market buying more freely than in former seasons. Some of these buyers who did not place advance orders are having trouble in securing deliveries on the popular weaves and colorings and in some instances are compelled to wait from four to six weeks for shipments. Several of the selling agents report that popular dress fabrics will be scarce during the fall season and that the mills will confine their looms mostly to orders, keeping surplus stocks as low as possible.

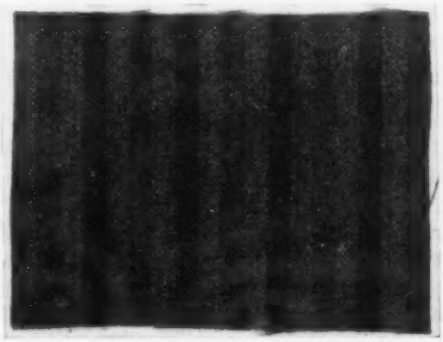
Plain weaves are favored in the staple colors similar to last season. There will be but few changes in the color line for the coming season, the popular colors being navy, rose, wisteria, greys and black, with tan and buff for evening wear. Browns have fallen off, but the trade has looked for this as browns have had a long run.

In the fancy dress goods market two-toned stripe effects continue to be attractive in the medium priced satin faced weaves. Striped serges are gaining favor as the season progresses. Folwell Bros. show a neat stripe serge, cream ground, 54 inches wide, at $1.00 a yard. Fig. 1 shows a neat suiting effect, 54 inches wide, from The Botany Worsted Mills at 90 cents a yard. Broessneck & Broessel are showing a light weight stripe suiting, 44 inches wide, at 67 1/2 cents a yard.

Plain and fancy mohairs continue to find a ready sale, especially with the cutting up trade. Owing to the recent advances on raw materials, the manufacturers making low grade dress goods have advanced their lines about 5 per cent.

### SILKS.

The conditions of the silk market continue to show improvement, while the immediate demand for silks has fallen off during the month. The manufacturers are booking a great many orders for fall deliveries. While the buyers are not placing large fall orders, they are buying complete



lines, with the feeling that no special fabric will dominate the market, and that the fabrics that were favored last season will continue to be in demand. While extensive color lines are being shown the trade are favoring the more staple colors.

Diagonal silk serge weaves are very popular for the early fall trade in qualities costing from 85 cents to $1.35 a yard. Valentine & Bentley show a 22-inch fancy serge effect at $1.00 a yard.

Satins are holding a very strong position in the market, especially with the cutting up trade. The mills making these satins report that they have booked enough orders

to keep their looms busy during the entire season. Prices are firm with slight advances on the more popular brands. The larger buyers are ordering shipments of these satins earlier than usual this season.

The demand for rough weaves continues to be active both for immediate and fall shipments. These rough silks are finishing the season very strong in all colors. From the present outlook it is evident they will be favored for the fall trade in the medium qualities costing from 50 to 75 cents a yard.

Messalines and other soft faced silks continue to gain favor, and will hold a strong position during the fall and winter season. Manufacturers feel confident that the vogue on messalines will be greater during the coming seasons than it was last year, with very little change in the color line.

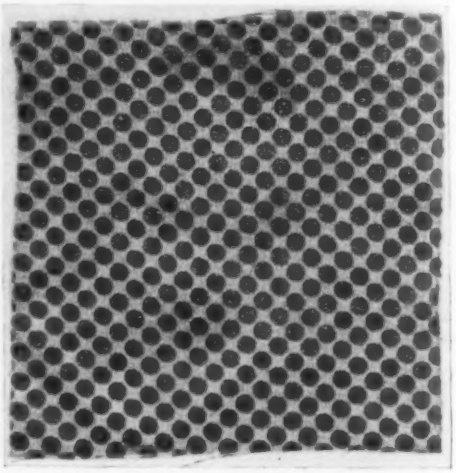
Several of the importers are completing their lines of foulards for the spring of 1910. Neat stripe effects are shown very freely with the usual staple patterns. Fig. 2 shows a neat staple, 24 inches wide, from Fried Mendleson & Co. at 57 1/2 cents a yard.

### COTTONS.

Generally speaking, the cotton goods market has shown a great improvement during the past few weeks. This activity is partially due to the sharp advances that are being made on all staples, such as 4/4 bleached and unbleached muslins, sheetings, etc. Buyers are exerting every effort possible to supply their wants at the old prices and in a great many instances the popular brands of 4/4 goods are scarce in the market. Several of the larger mills have advised the trade that more advances will be made within the next 60 days and that the market will be stronger during the coming season than it has been for some time.

The demand for wide sheetings has been one of the features of the markets. These sheetings have been advanced about 5 per cent. during the past 30 days. The increases have also affected the made up sheets and pillow cases, which have been advanced from 50 cents to $1.00 a dozen. The manufacturers of sheets and pillow cases are confining their efforts to quick deliveries and are not taking future orders on today's market.

The leading manufacturers of staple prints have advanced their price 1/4 of a cent a yard throughout the line. Other printed cloths such as percales, galatea cloths and madras fabrics continue to be offered at the old prices. The more conservative buyers are placing their orders on these goods as they feel that advances will be made soon.



The demand for dress ginghams continues to be active both for immediate and fall shipments. Fine Zephyrs are selling freely for early fall shipments.

Mercerized poplins, linen finished suitings and reps continue to be in demand. In fact the mills that make this class of merchandise are sold ahead and report that open stocks of poplins will be scarce during the coming season.

The immediate demand for cotton linings is quiet. Large orders are booked for fall shipments. No advances have been made in this branch of the trade, as most of the converters were well protected on grey goods when the advances were made.

The converters of white goods are turning their efforts to complete their lines for the spring season 1910. Sheer white goods are finding a ready market for immediate shipments.

## MEETING OF THE NATIONAL ASSOCIATION OF COTTON MANUFACTURERS.

The 87th meeting of the National Association of Cotton Manufacturers will be held at the Mount Washington Hotel, Bretton Woods, N. H., on September 22-23, 1909.

President Charles T. Plunkett will return shortly before that date from an extended continental trip and it is expected will present to the members some of his experiences and opinions on cotton manufacturing the other side of the Atlantic. Gov. Henry B. Quimby, of New Hampshire, will welcome the Association to the Granite State.

The program is not as yet fully arranged as several of the papers mentioned below are subject to the contingencies of their authors' returning in time from foreign trips. Several others are expected but not definitely arranged.

The Committee on Standard Specifications for Staple Grey Goods have continued their arduous labors, and held several conferences with other interested parties, and will present further information on this important subject.

Other subjects on which papers are expected are:

Sizing.

Commercial Values of Coal for Steam Generation.

Housing Mill Employes.

Steam Generation.

Reinforced Concrete for Mill Construction.

The Labor Problem in Relation to Cotton Production.

America's Monopoly of Cotton Production. Is it Permanent?

Accidents to Cotton Mill Operatives.

Friction Clutches.

The paper on Bibliography of the Cotton Manufacture, a portion of which was submitted at the April meeting of The National Association of Cotton Manufacturers by Secretary Woodbury is completed and in type, and comprises 5,074 titles, which are divided into six groups of subjects.

In addition to being included in the Transactions, it will be published separately in book form by the first of September.

The program as outlined above would alone be sufficient to attract a large attendance. In addition there are the attractions of the White Mountains and the well-conducted hotel at which the meetings are to be held. The Mount Washington House is famed as the peer of all hotels in its line.

## BRADFORD AND FRENCH SYSTEMS OF WORSTED SPINNING.

*BY EDFORD PRIESTLEY, of the Bradford Technical College.*

Before the Huddersfield (Eng.) Technical College.

(Continued from June.)

All the machines employed are in the first two operations ordinary gill boxes with intersecting gill boxes in the case of the finer qualities, these being followed by a porcupine box which specially favors parallelizing of the fibers, without interference with the relationship of the shorter material present. Special notice should be taken of the endeavor made to preserve the fiber for the top, and to obtain parallelizing of it also. It seems to me that the inclusion of all or part of these machines and operations into our series, for use on the shorter wools, is worthy of consideration by combers; through it the "tear" in combing would be very much improved, the spinning quality (through the straightening and lengthening of the fiber) would be increased, and the handle of the resultant yarn or cloth, because of the shorter material present—this giving fulness—would no doubt be improved.

9. English: Backwashing; Continental: Combing. It will be seen that in the English system the positions occupied by backwashing and combing respectively are the reverse of those taken up in the Continental system. The advantages and disadvantages of each arrangement are summarized below:

a. Backwashing before Combing:

Advantages: (1) Tops can be drawn and spun on Bradford type of machines;

(2) If "bluing" be adopted for tops, there is less risk of irregularity in application, as the fibers are well mixed in the comb;

(3) Whiter and more valuable noils;

(4) Oil is added to noil which makes it more suitable for carbonizing.

Disadvantages: (1) Tendency to stickiness if oil be poor in quality—bad to draw;

(2) Oil is often difficult to remove by dyer;

(3) Expense is incurred in adding oil for combing after removing much of that naturally present; and

(4) Top backwashed early in processes has tendency to collect slight dirt again.

(b) Backwashing after combing:

Advantages: (1) Top free from oil therefore (1) more readily drawn; (2) Yarn fuller in appearance; and (3) finished fabric more uniform when dyed.

Disadvantages: (1) Only well conditioned and well "set" tops of very fine quality can be spun on Bradford machines;

(2) Noils are dirtier and less valuable—"unblued."

The conclusions from the above are these: From the resultant yarn standpoint it is more satisfactory to backwash before combing for long wools which, because of their length, tend to electrify in the drawing and spinning machines, for here the oil necessary in combing is of use also in controlling the fibers in the later processes, this improving the spin and facilitating the production of a smoother yarn. For the shorter and finer qualities, backwashing after combing appears to be more satisfactory, as by this arrangement the oil is removed, which when present, tends to control the fiber more than is necessary, and by thus solidifying the ends too much, robs it of its softness.

The machines as employed in these operations vary somewhat in construction, but particularly so in the arrangements for drying. A common form of Continental backwasher has about 30 small drying cylinders of the type of shells placed on the drying chambers. The advantage here is two-fold: the slivers are on and off the chambers for a reduced length of time, and they are never in very close proximity to the steam. The form of cylinder employed in this country is sometimes a revolving or "live" steam chest on which the wool is laid; more generally, however, a shell is employed; but in almost all cases the cylinder is considerably larger (say 18 in. against 5 in.), which means that through continued contact with the hot cylinder there is greater risk of weakening and discoloring the fiber. Against 90° F. as the temperature of the drying cylinders in a Continental backwash, must be placed 140° F. in ours; and it is doubtless this, in conjunction with the large cylinders mentioned above, on which the "naked" fibers are placed, which is responsible for part of the trouble in spinning and for unsatisfactory yarns.

10. English: Combing; Continental: Drawing. In combing machines, those of the French (Schlunberger, etc.) type are employed along with the Noble, the construction of the former being specially suited to the treatment of short material in which the fibers require to be straightened, and the minimum noil—which in this case will be chiefly neps—removed. A disadvantage of this machine is its turn-off; it is not very well suited, either to longer qualities; thus, for these, the Noble is conveniently employed in its place. With us, the Noble is employed for general qualities, the nip for the longer, and the square motion for the shorter qualities; but in each of these the arrangements are such that much more noil is inevitable than in the Continental type, and this increases the cost to some extent. On the other hand, the uniformity we obtain through the removal of the noil is very useful in the later spinning operations and machines as used by us.

In the position occupied by the Combing operations in the English system, is Drawing on the Continent, this operation being necessary in order to level up the somewhat irregular top from the comb, and prevent what might be an abnormal amount of fiber curling when the top is taken through the backwash sud in the next operation. The machine employed is the porcupine box, as previously referred, and which will shortly be described in detail.

11 and 12. English: Finishing; Continental: Backwashing. For treatment according to the English system two finishing operations follow combing, which have for their object the thorough mixing of the

longer fibers, the parallelizing of these, and the production of a uniform end of a definite weight. In the last machine the top is also "balled" in a suitable form for transference. Due to the large amount of opening and straightening done before backwashing in the Continental system, and on account also of much of that fiber which curls,—the noil—having been removed by the comb, one finisher box only, of the ordinary baller type, is required.

The following conclusions, arrived at from the study of the foregoing operations, may be submitted. The English system is better for long wools; it is simpler, cheaper, and more truly worsted in result. For shorter wools it would seem that the operations as employed here—even though the material used by us is generally of a sounder quality—are not sufficiently graded and "humane" in their treatment. Again, the maximum amount of top is not made owing to many fibers not being sufficiently opened after carding. Then the fulness and softness of handle we obtain in our finished products are not altogether what the material is capable of yielding; and lastly, as referred to at the outset, on account of the oil remaining in the wool throughout the drawing and spinning operations, there is difficulty in producing a satisfactory shade.

List 2 shows the drawing and spinning processes and machinery for both systems, as arranged for working on materials, and for producing results as similar as can be obtained for purposes of comparison.

The methods as practised on the Continent in regard to drawing and spinning and the results obtained, prove our methods, particularly as adapted to fine wools, to be distinctly second rate. Observe the following:

(a) Ten processes are noted in the English system of drawing as against twelve in that of the Continent. This means, of course, that to produce the same result in weight of roving each process in the English set must do more work; in other words, longer drafts with a greater strain on the fibers will be necessary in each process, and a consequent increased risk of irregularity. Then we do not have as many leveling operations (for instance, one against three) as in the Continental set, in order to overcome the results of heavy drafting; and though in support of our method it might be said that the increased uniformity of our own tops—the result of a thorough combing—counteracts the tendency to irregularity to some extent, still, there can be no doubt that the best results are not obtained with such an inadequate attempt at equalizing.

(b) Against the two opening processes by gill boxes in the English system, we note every process in the drawing as being an opener in the Continental system, the machines employed being porcupine boxes. The porcupine is a small roller with short pins set tangentially to its circumference in the direction opposite to that in which the roller revolves. Set at a height a little lower than the porcupine are the back and front rollers and carriers which guide the wool through its pins, and at the same time draft it, the pins serving to keep the fibers open at the same time as they control them so as to prevent irregularities. Due to drafting in the absence of opening arrangements the tendency in all our own machines, save the gill boxes, is towards the solidification and pressure of the fibers. This causes them to be fractured or broken in succeeding boxes in a way distinctly harmful.

(c) It will be observed also that twist is inserted from the third process in English machines. On the other hand there is no twist in any of the Continental machines; all that is done is a sort of rolling of the ribbon of wool so as to give solidity for winding-on purposes, by means of rubbing leathers having a lateral as well as a rotary motion. Now twist is rightly said to be the spinner's greatest enemy—though at times it proves a friend in need—and truly, twisting the fibers in one machine prior to drafting the same in another, is to break the fibers so as to lose counts in spinning quality, and to interfere beyond repair in the production of a smooth worsted thread.

(d) Winding onto bobbins is common to both systems, but the methods of accomplishing this differ greatly. In Continental machinery it is very easy, whereas in our own system, even when done under the best conditions, there is a certain amount of tension which sometimes becomes actual draft irregularly applied. This is the reason why twist is so essential in our drawng; it imparts strength to the end; but it results in the production of a firm and solid yarn which is exactly opposite to what should be expected from fine botany material.

(e) In spinning, the mule and ring machines are employed on the Continent as against cap and ring frames in this country. The mule is acknowledged by all as being the typical soft yarn frame, and it is almost invariably used abroad when softness is the prime requirement. The ring frame also, though not the best for yarns of this type, is not unsuitable; on the contrary, it is certainly better than the cap frame, which is most popular here, for the cap either roughens the yarn until it nearly approaches woolen in appearance, or it requires so much twist to control the "ballooning" fibers that the yarn is made unreasonably hard.

The effect on the material resulting from the use of these two systems is further illustrated by a study of actual particulars of "drawings" on the two systems, which yields the following:

(1) Draft. In our own system as the material is made thinner the draft is increased, while in that of our competitors the opposite conditions prevail. And are not the latter more reasonable? When an end is being reduced in each operation by drafting there is surely sufficient tendency towards irregularity on this account alone, but to increase the draft in spite of this appears to me to be deliberately favoring the production of faulty yarn.

(2) Doublings. These are markedly fewer in the Continental system, but relative to the draft employed they are considerably greater than in our own system. For example: In the sets previously referred to the

| | | |
|---|---|---|
| Total draft—English set | = | 20,760,468 |
| Total doubling— do. | = | 172,800 |
| Percentage of doubling on draft | = | 0.83 |
| Total draft—Continental set | = | 1,640,286 |
| Total doubling— do. | = | 32,768 |
| Percentage of doubling on draft | = | 2.3 |

Then, if that which today is accepted as an axiom by practical men be applied here, viz., that doubling should be large and draft small, the superiority of the latter system is readily demonstrated.

(3) Twist. Against an absence of twist in the material as treated on the Continent, is the following range of turns per foot of slubbing as employed by us, commencing with the Two-spindle Gill Box: (1) 1.5, (2) 2, (3) 2.15, (4) 4.5, (5) 11.75, (6) 20, (7) 48 (Roving Box.) In this case also we have increasing twist on a decreasing end, a condition which cannot but unreasonably bind the fibers and cause their breakage.

The result of all this as shown by the actual materials is a very striking one. Commencing with two fine wool tops (one representing each system), which may be said to be equal in length, uniformity and other features, these on being compared midway through the respective processes differ somewhat. The oil-combed top, treated on English lines, and on "cone" not "open" machinery is irregular. It contains an amount of short fibers not present in the other. Later, however, when a comparison is made of the rovings, on account of the short fibers present in the English type due to breakage, there is hardly any similarity at all; and when a "draw" of fibers of the English roving is placed alongside one from the corresponding top, a loss in length equal to at least 15 per cent. is discovered. We hear a good deal today about bad spins, the causes of which are said to be poor wool and bad blending. The wool no doubt needs attention; but in our efforts to effect reform let us not ignore our system of mechanical treatment, for unquestionably this is the chief cause of the difficulty we experience in spinning.

From what has been done with regard to the processes and machines we may now finally turn to a brief study of the materials to which each system is suited. As has been pointed out, the Continental system is easy

in its influence on the material; every endeavor is made during treatment by opening operations to preserve all the fibers for spinning; and in no case is anything done to interfere with any useful characteristic of the material, but everything is done which may emphasize these in the yarn. Wools, long, medium or short, are not despised by Continental combers and spinners. Shortness, within reasonable limits, is no drawback either; and therefore many wools which are of little use to us, except as blending types, such as South American, Swan River, certain types of Sydney and Cape Wools, are selected by our rivals, and some of the very defects mentioned made features of valuable importance in the finished products. This too has its financial aspect. Some of the wools most useful on the Continent are procurable at a reduced rate, and they thus favor business, of which there is a great volume, which is directly governed by price. Certainly many of the fabrics made are not so strong and durable as those manufactured here, but they are sufficiently so to fulfil the wearing requirements necessary for the majority of people in these days of quickly changing fashions.

## THE TEXTILE TRADE OF THE PHILIPPINES.

*BY CHARLES RICHARDS DODGE.*

For the first time since the American occupation, a balance of trade in favor of the Philippines is shown, the total imports amounting to $30,050,550 against a total export value of $33,454,774. The gain is largely due to the increase in exports, in the past year, to the value of more than four million dollars. Almost two-thirds of the sum total of exports is represented by the one item, Manila hemp.

While the United States imported from the islands, during the year, products valued at nearly fifteen million dollars, the exports from this country to the islands amounted to only a little more than five and a half millions, although the year marked the advance of the United States to the first rank in the import trade of the islands. It is worth noting, also, that our exports of raw cotton and cotton goods to the Philippines exceed the exports of any other American industry by over $226,000, wheat flour and illuminating oils ranking second and third respectively. The exports of raw and manufactured cottons from the United States to the islands for the year amounted to over three-quarters of a million dollars. The four leading articles of Philippine export are Manila hemp, sugar, copra and tobacco. The United States holds first place as a purchaser of hemp and sugar, having imported to this country over twelve million dollars' worth of the former, and two million dollars' worth of the latter.

### TEXTILE RAW MATERIALS.

It will be seen that textile fibers are the principal and most valuable resources of the islands and a study of the figures of production since the American occupation shows that the production of Manila hemp is increasing. The exportation began in 1818 with about 40 tons; two years later the first specimens of the fiber were brought to this country by one of our war ships, but it was not until seven years later that we began to import for manufacture, in a small way. In the year 1900 the exports of the fiber had reached 90,000 tons, in round numbers, a little more than a third coming to the United States. The figures for 1905 are 128,000 tons.

The Manila hemp plant belongs to the Canana family, though strictly speaking it is a plantain. The plants grow to a height of 12 to 15 feet, and present the appearance of a trunk or thick stalk, with a smooth skin and surmounted by very large elongated ovate leaves. A single root stalk may produce a dozen or more trunks. The trunk is composed of the flattened leaf sheaths, which overlap each other. These leaf sheaths are the source of the fiber, which lies near the outside of the sheaths, and is secured by scraping away the pulp, the trunks having been first reduced to long strips. After extraction, sorting and drying, it becomes Manila hemp of commerce.

In addition to Manila hemp a fiber that

has been misnamed "Maguay" is beginning to be produced in export quantity, although very little of it comes to the United States. It is a substitute for Yucatan sisal hemp, which it resembles, and it is used for the same purposes. It is said to be the Agave vivipera. The plants are cultivated in Northern Luzon and southward to Iloilo and Western Negros. The exports of "Maguay" amounted to $171,813 last year, this country buying less than $7,000 worth, the bulk of the fiber going to England and Japan.

Turning to the Philippine imports of raw fibers, we find raw cotton to be the most important item, purchased almost exclusively from the United States to the value of $92,086. The imports of flax and common hemp are wholly derived from the Orient, and amount to but $1,275, while Esparto grass, rushes for mat making, vegetable hair for upholstery, cane and osiers for basketry, etc., and fine straw and palm fibers for hats and many other uses—purchased in fourteen countries—foots up in round numbers, sixty-eight thousand dollars, the greater part of which was derived from contiguous countries. Our share in the trade was about two thousand dollars, probably for Southern moss.

Cotton is grown in the islands to some extent. The latest figures that are available show an area under cultivation equal to 7,500 acres in round numbers. The lint is used for making blankets and native cloths. About one-half of the total area under cultivation is in Ilcos Norte. The most common form cultivated is gossypium herbaceum, introduced many years ago from Spain. The Insular Bureau of the war department has recently introduced an Egyptian cotton (G. barbadense) which produces a staple 1 1/4 inches long. Tree cottons abound in portions of the islands, the product being chiefly employed by the natives for stuffing pillows, making fish lines, candle wicks and other uses in the domestic economy.

The total value of the Manila hemp exports for the year amounted to $21,757,344, fiber to the value of $12,648,143 having been taken by the United States, Great Britain being the only other important buyer, with purchases to the value of $7,872,267. It is interesting to note that these two countries, in their purchases of this one item, make up over twenty millions of the thirty-three millions that represents the entire export trade of the islands in 1905. The remaining $1,236,934 of hemp exports was distributed among eleven other countries.

### NATIVE TEXTILE MANUFACTURES.

While the exports of native fabrics do not cut much of a figure in the foreign trade of the islands, the exports are increasing, and it may be interesting to briefly describe them. Woven fabrics are mostly produced in Ilcos Norte and Ilcos Sur, where the cotton blankets and cloths are chiefly made —and in the provinces of Albay, Ambos, Camarines, Iloilo, La Union, Rizal, Sorsogon and Tabayas. There is one steam cotton mill in Manila, however, equipped with up-to-date machinery, the only mill of the kind in the archipelago.

Weaving in the Philippines is the principal household industry, its history going so far back into the past that there are no records to show its antiquity. The fabrics are for the most part of a filmy character—perhaps flimsy would be the better word—and not very durable, though many are beautiful. No complete investigations have been made regarding the extent of the industry, but a statement regarding two localities will illustrate its national character. In Abra, Luzon Island, where an enumeration was made, there are 2,293 establishments, and in Iloilo, 3,042. In these five thousand and more homes fabrics are produced to the value of only 1,278,600 pesos, equal to about 242 pesos per family. In the manufacture of these fabrics no attempt is made to produce figured designs, and the weaves are in stripes and plaids, or plain.

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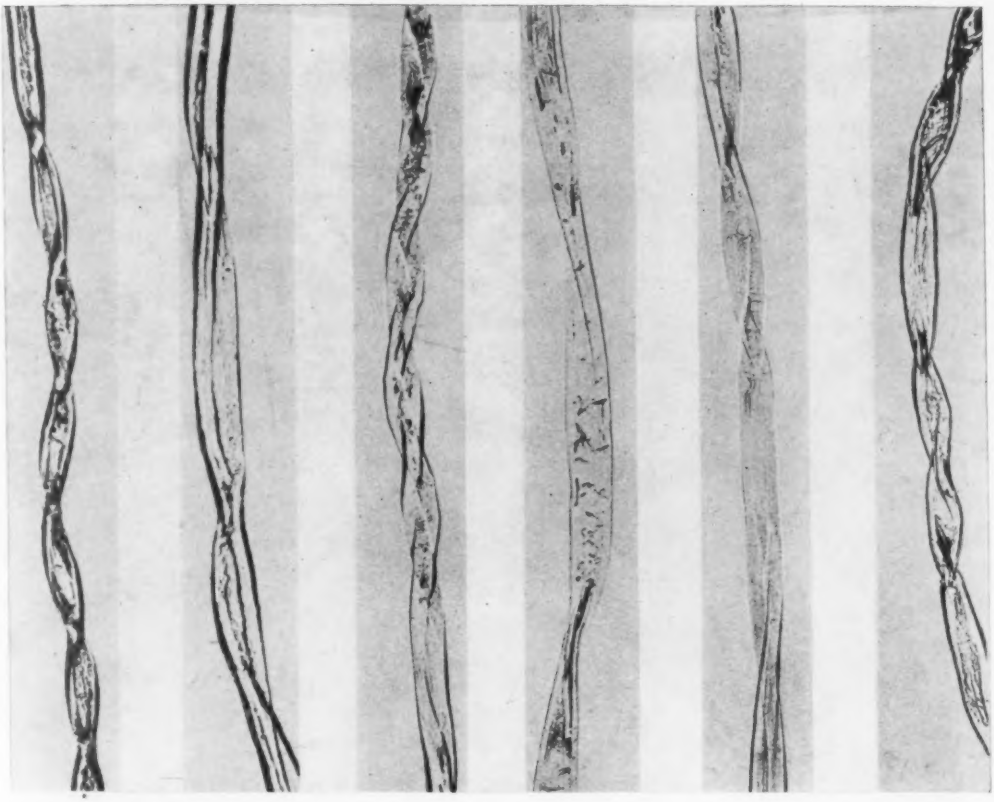
The total number of cotton spindles in Greece is estimated at about 99,300 and the number of looms 1,205, employing about 5,000 operatives. The total production is figured out at 3,600,000 skeins of yarn.

## THE COTTON FIBER UNDER THE MICROSCOPE.

*BY PROF. ALOIS HERZOG, of the Prussian Textile School, Sorau, Germany.*

The cotton is a single cell seed fiber of the species gossypium and of which there are six principal varieties: Gossypium herbaceum L., Gossypium arboreum L., Gossypium hirsutum L., Gossypium barbadense L., Gossypium peruvianum Cav. and Gossypium religiosum Auct.

The fiber is narrower at the base than in the center and measures from 12 to 42 microns in width and from 10 to 50 mm. in length. The cell structure is well developed and on the outside has an extraordinarily thin granular or striped covering, the cuticula. This covering is very perceptible, as shown at photograph 1. As a result of the peculiar cross sectional form the longitudinal section appears puffed up or swollen. For part of its length the fiber is twisted in the form of a cork-screw, this twist seldom extending for the whole length of the fiber. The more numerous and uniform these twists are, the better is the quality of the cotton. The fiber is closed only on one end. It is free from wood material and consequently exhibits a pure cellulose reaction in an iodine preparation. The section of the cotton fiber varies from elliptical to reniform. In rare instances the section is nearly circular with the lumen exhibiting short slits.



EGYPTIAN COTTON OBSERVED UNDER VARIOUS CONDITIONS. 1, AIR; 2, WATER; 3, GLYCERINE; 4, CEDAR OIL; 5, ANISE OIL; 6, MONO-BROMIDE NAPTHALINE. 260 DIAMETERS.

Cotton shows the characteristic forms after treating with a copper ammoniacal so-

lution. All varieties of cotton, however, do not exhibit these reactions; while many of the best fibers exhibit similar reactions. After this treatment the cotton fiber swells up in irregular form and finally the cuticula and inner covering, together with the slight protoplasmic residue, are completely dissolved. The non-swelling cuticula is found outside of the fiber in a ragged form. Similar but less distinct forms result after treating with iodine and a solution of glycerine and sulphuric acid, see photographs, 13, 21, 22 and 23.

Frequently there are found in addition to the cotton fiber as above described, slender untwisted and frequently double striped fibers of dead and unripe cotton. These dead fibers have very little affinity for dyestuff, consequently they should be taken into consideration when investigating the imperfections in the color of dyed cotton goods, such for example as striped or spotted places on the fabric. Photograph 17 shows dead cotton fibers under the microscope.

It is difficult to distinguish the different kinds of cotton. The principal variation is found in the width of the fiber. Following

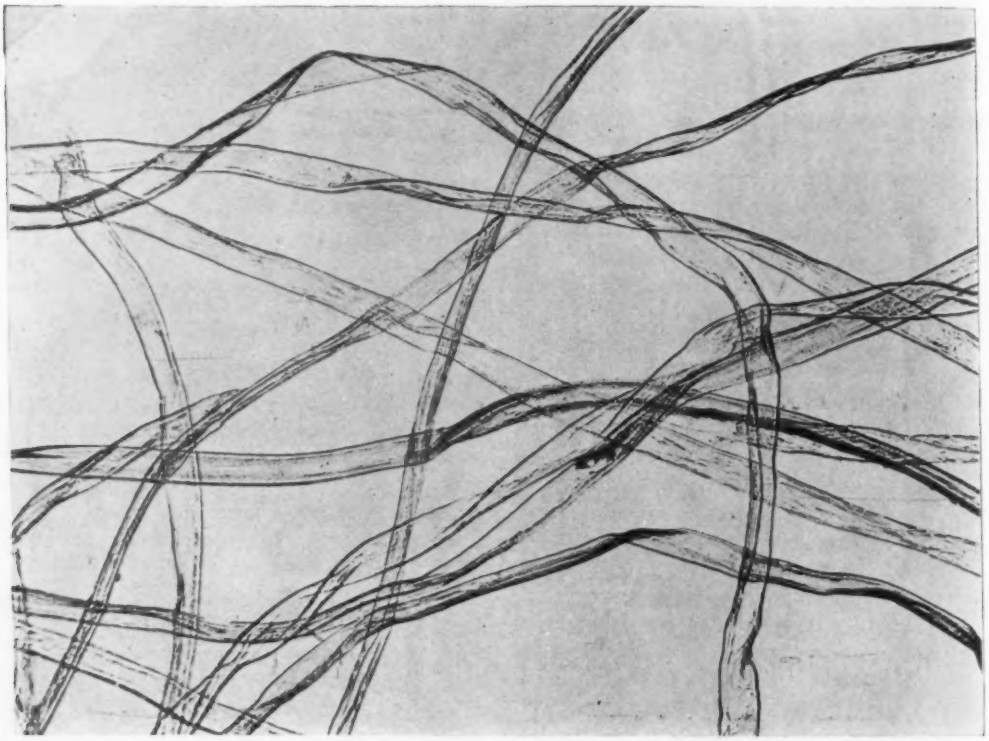


FIG. 7. NANKING COTTON (GOSSYPIUM RELIGIOSUM), 260 DIAMETERS.

are the maximum and minimum widths of the different varieties according to Weisner:

| | |
|---|---|
| Gossypium herbaceum | 11.9-18.9...22.0 |
| Gossypium barbadense | 19.2-25.2...27.9 |
| Gossypium conglomeratum | 17.0-25.5...27.1 |
| Gossypium acuminatum | 20.1-29.4...29.9 |
| Gossypium arboreum | 20.0-29.9...37.8 |
| Gossypium religiosum | 25.5-33.3...40.0 |
| Gossypium flavidum | 29.0-37.8...42.0 |

The second column gives the maximum width most frequently encountered.

Optical Appearance: Cotton exhibits a strong double refraction. Between crossed nicols the fiber exhibits polarized colors, mostly yellow of the first order; only in those places where the narrow edge of the fiber projects upward are colors of the second order found. Between parallel nicols the respective complementary colors are exhibited. In polarized light all irregularities and unevenness of the fiber show up very distinctly.

Cotton fibers dyed with Congo Red exhibit only slight dichroism, in contrast with many bast fibers, see photographs 19 and 20.

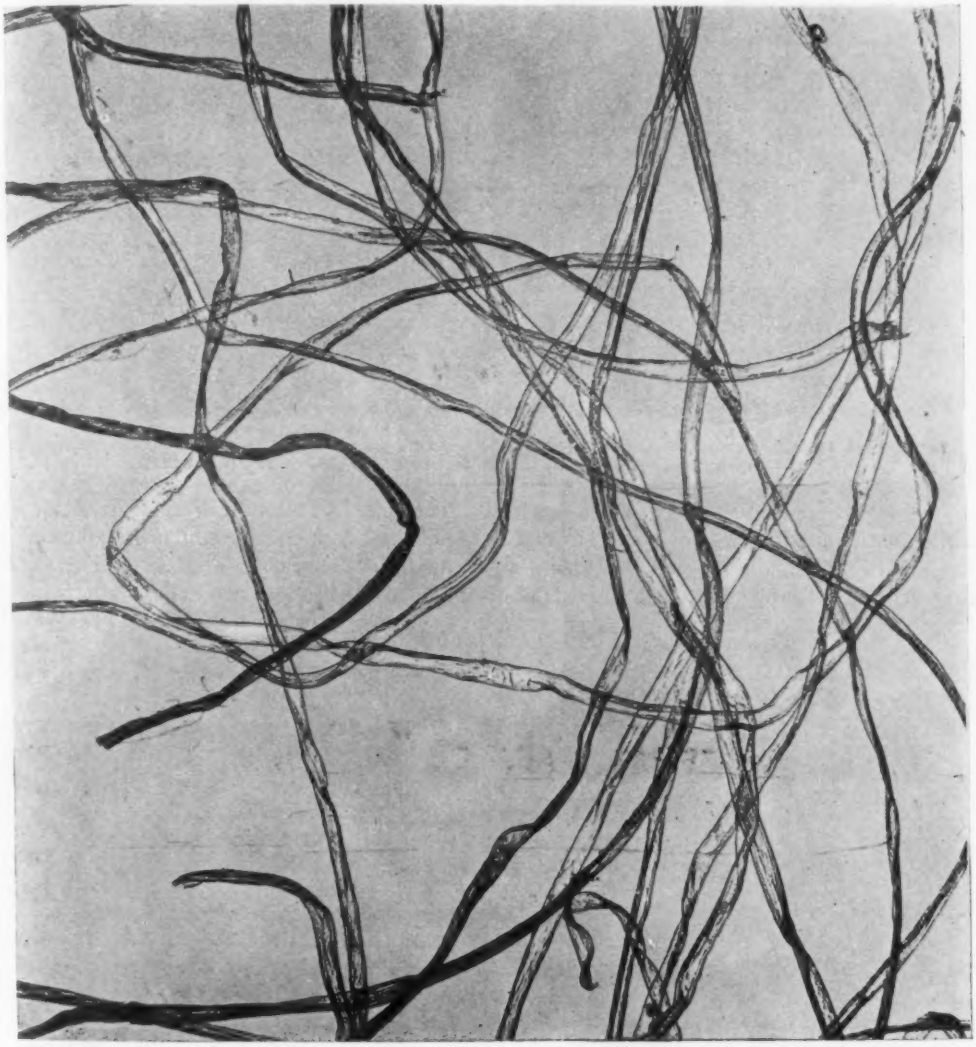


FIG. 8. COTTON FIBER (GOSSYPIUM RELIGIOSUM), 83 DIAMETERS.

In distinguishing cotton and linen by dyeing with different colors Behrens preferred the use of Safranin and Chrysophenin. Samples of linen and cotton colored with

other dyes, which are useful in distinguishing the fibers by the naked eye are of no special value for microscopic work.

places at intervals. Frequently this irregularity is scarcely perceptible. In the interior a granulated residue is frequently found.

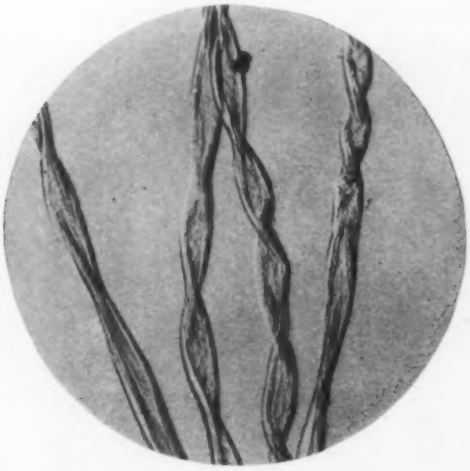


FIG. 9. SEA ISLAND COTTON (GOSS. BARBADENSE), 185 DIAMETERS.

FIG. 10. EAST INDIA COTTON (GOSS. HERBACEUM), 185 DIAMETERS.

Mercerized Cotton: Cotton mercerized either with or without tension is easily distinguished under the microscope from unmercerized cotton. The mercerized fiber

The mercerized cotton fiber swells rapidly in the copper ammoniacal solution and finally is completely dissolved. The swelling of the fiber does not exhibit special forms.

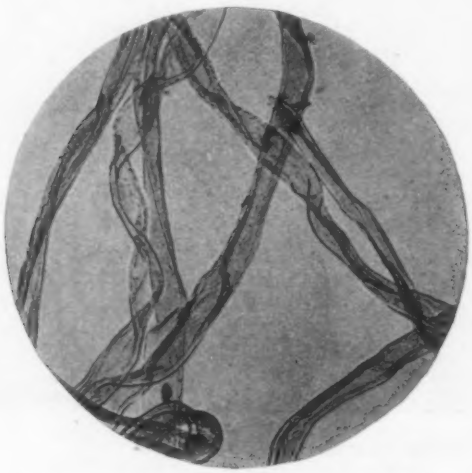


FIG. 11. UPLAND COTTON (GOSS. HIRSUTUM), 185 DIAMETERS.

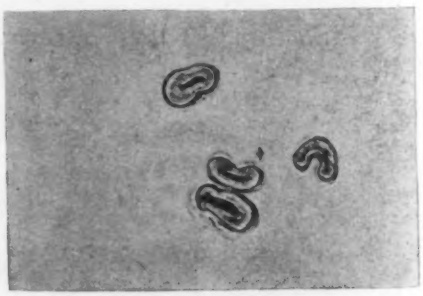


FIG. 12. CROSS SECTION UPLAND COTTON, 308 DIAMETERS.

appears as if stretched more or less and has a smooth surface. The lumen of this cylinder-shaped fiber shows narrow and wide

The mercerized cotton fibers absorb much more iodine than does unmercerized cotton when treated with iodine and sulphuric acid

or any of the other iodine reagents. The cross section shows a nearly circular form.

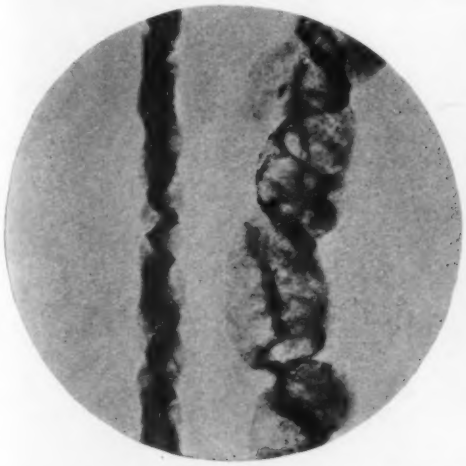


FIG. 13. TWO COTTON FIBERS TREATED WITH IODINE AND SULPHURIC ACID, 93 DIAMETERS.

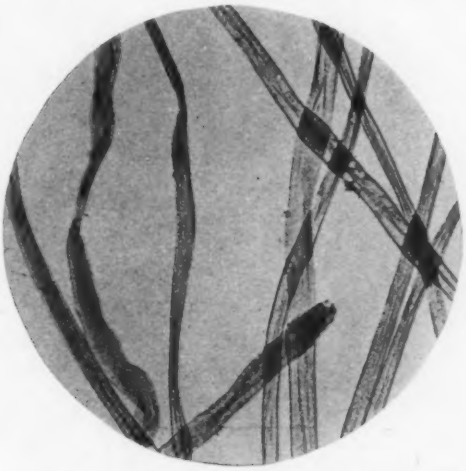


FIG. 14. MERCERIZED COTTON, 140 DIAMETERS.

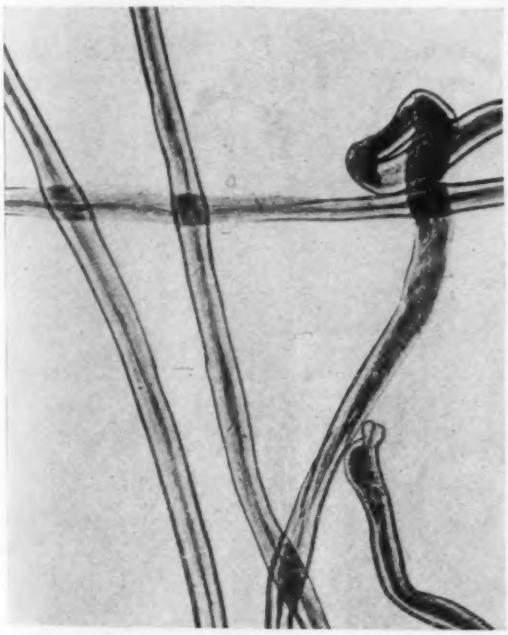


FIG. 15. MERCERIZED COTTON, 188 DIAMETERS.

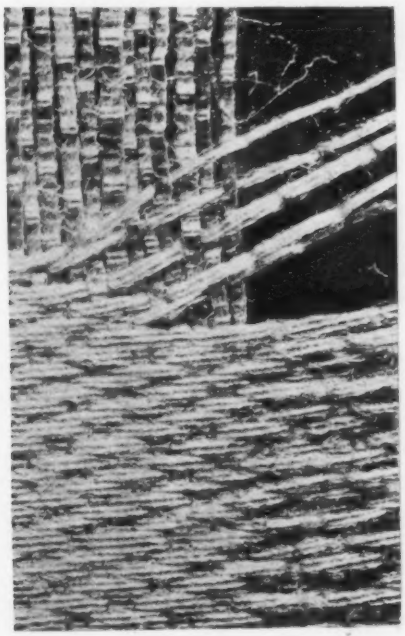


FIG. 16. SILK FINISH ON A COTTON FABRIC, 8 DIAMETERS.

Mercerized cotton under the microscope is shown by photographs 14 and 15. A very practicable and simple color reaction has long been known: chloride of zinc and iodine solution of a certain composition (see reagents) colors cotton blue. If the cotton is not mercerized the color is completely removed by rinsing in water, while mercer-

FIG. 17. UNRIPE COTTON, 160 DIAMETERS.

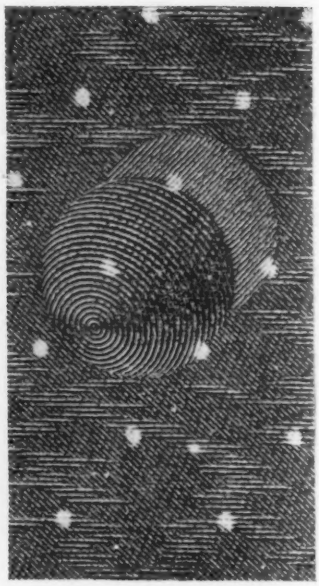


FIG. 18. GAUFRE FINISH ON COTTON CLOTH 4 DIAMETERS.

ized cotton remains of a pronounced shade. This test is also suited for dyed cotton. It is necessary to remove all sizing by boiling in dilute muriatic acid before making the

FIG. 19.

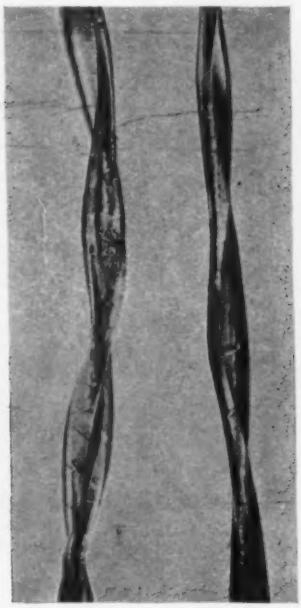


FIG. 20.

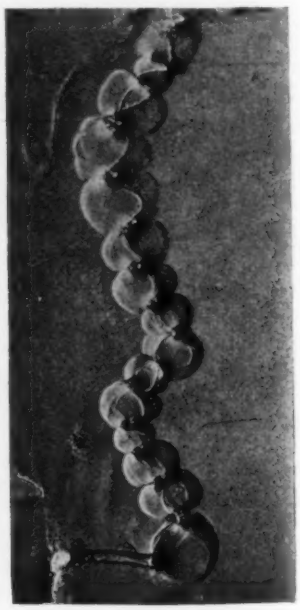


FIG. 21.

SEA ISLAND COTTON, POLARIZED LIGHT. FIG. 19. CROSSED NICOLS. FIG. 20. PARALLEL NICOLS, 360 DIAMETERS. FIG. 21. COTTON IN COPPER AMMONIACAL LIQUOR, 96 DIAMETERS.

tests. This test is also very useful for microscopic work.

Another method for distinguishing mercerized from unmercerized cotton is based on the fact that cotton mercerized twice, if subjected to this test, does not acquire any greater affinity for dyestuff. The color is stripped from the yarn or cloth to be tested and the sample is then stretched on

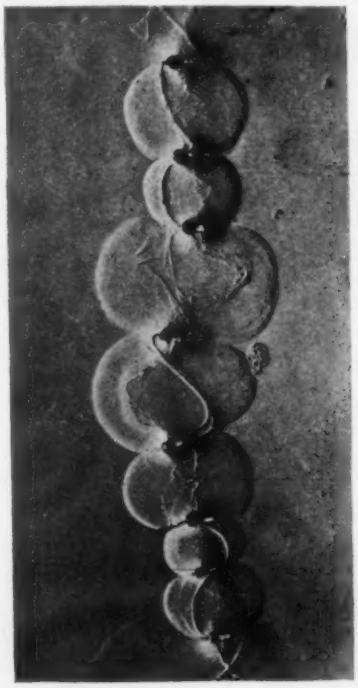


FIG. 22. SAME AS FIG. 21, BUT IN LATER STAGE, 100 DIAMETERS.

a frame. Two solutions of soda are then prepared: (1) solution standing 40° B. (2) a 40° soda solution mixed with three parts by weight of water to one of the soda solution. These solutions are applied to the sample of yarn or cloth in various places. After a time the sample still remaining on the frame is rinsed in water to remove the soda. It is then soured and again washed. Next comes a dyeing with Congo Red. If the cotton was not mercerized the spots to which the solution was applied will have a much deeper color than the body of the sample. Mercerized cotton, on the other hand, will exhibit a uniform shade.

Silk Finish: The beautiful silk-like luster which is frequently imparted to cotton is generally the result of mercerization, but frequently is produced by pressing with a metal surface having very fine lines or corrugations. These corrugations in the cotton fiber are easily distinguished under the microscope by very slight enlargement. It is necessary to ravel out a few threads on the edge of the sample of the cloth being tested

FIG. 23. JAPANESE BAST FIBRE, IN COPPER AMMONIACAL LIQUOR, 110 DIAMETERS.

and then examine the fibers for the corrugations, see photograph 16. The gauffre finish is similar to the silk finish, but the corrugations are arranged to produce patterns, as shown in photograph 18.

---

During 1908 a total of $816,004 worth of grass cloth was imported into Korea from China, an increase of $340,931 over 1907. China is the only country that ships grass cloth in any large quantity to Korea, supplying 75 per cent. of the consumption, the balance being manufactured in Korea. It is estimated, also, that 90 per cent. of the cotton goods, 75 per cent. of the linen, and 50 per cent. of the silk used in Korea is of foreign manufacture, the bulk of the linen coming from China.

# CORRESPONDENCE AND NOTES

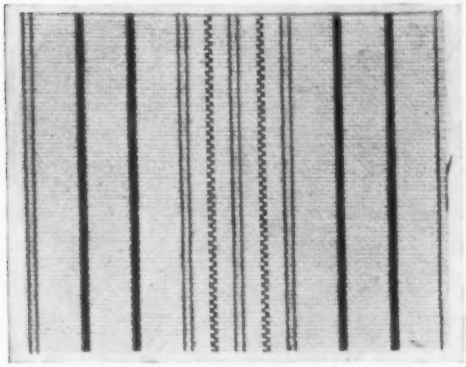
## Upon Textile Topics At Home and Abroad.

### DESIGNS FOR COTTON FABRICS.

BY J. W.

Fig. 1 is a neat style of shirting. The stripes are of one color but by drawing the threads double and single a variation is

FIG. 1.



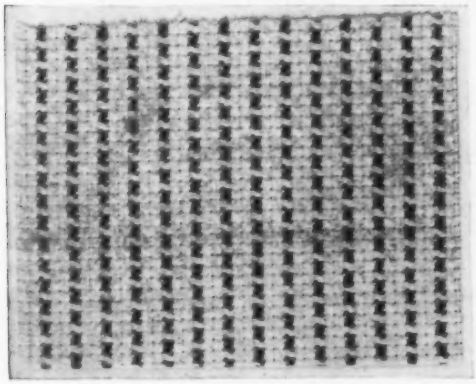
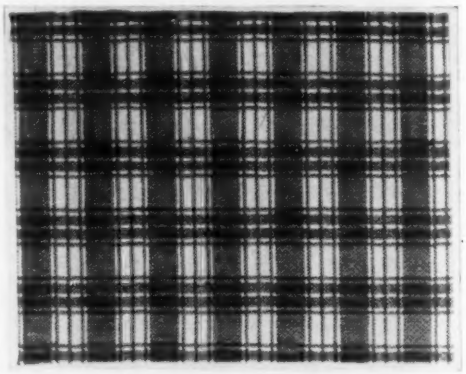


FIG. 2.

made. The particulars for its production are 80 threads per inch, two, and if crammed in the reed, four in a dent, 40s warp, with 40 picks of 10s filling per inch. The weave is plain. The heavy lines and the fine are drawn single through the heddles and the white ground is drawn double.

Fig. 2 is a zephyr check and is a small neat style much in favor at present. Various

FIG. 3.



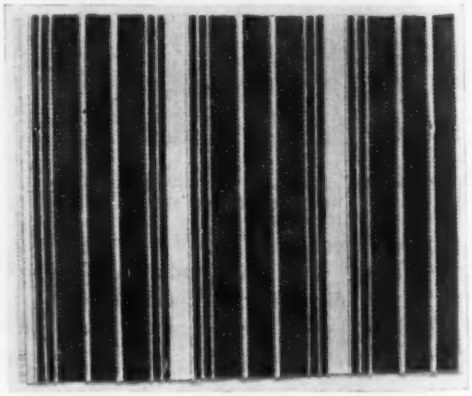


FIG. 4.

makes of these styles are on the market, both in ordinary and mercerized yarns, the latter being made in a variety of shades to the following particulars: 84 threads per inch, 2/80s mercerized warp, 80 picks 2/80s mercerized weft for the filling.

Fig. 3 is a good style for silk weft cambric, much used for ladies' dress goods. Cords are introduced into the cloth by cramming

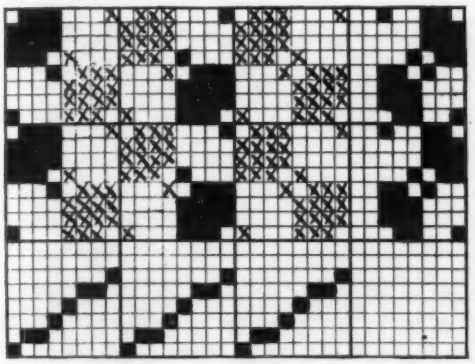


FIG. 5.

several threads in a dent. The warp is of two fold yarn from 2/70s to 2/100s and the weft from the two fold silk to fine single according. The weave is plain.

Fig. 4 is a neat style for shirtings. It is

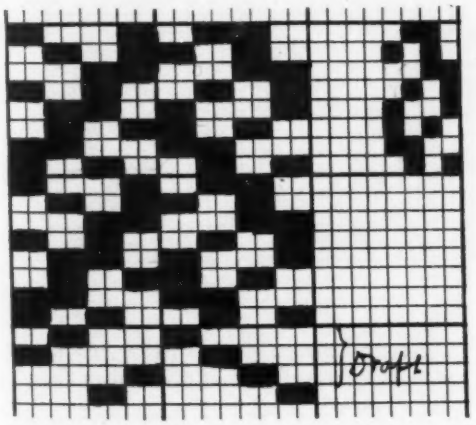



FIG. 6.

very open in the weave and is fairly cheap. The stripes are desired in various colors, and in other styles the coloring is reverse to the design given, these being used for dress goods. The particulars for production are: 64 threads per inch, 20s warp, 64 picks per inch, 16s for the filling. The full design, the drafting of the threads through the beadies, and the dobby plan is given at Fig. 5. The warping pattern is 8 threads white, 4 threads color.

Fig. 6 is a crepe weave much desired at present. These are made with various colors of warp and usually white weft. The particulars for its production are: 104 threads per inch, 26 dents 4 threads in a dent, 40s warp, 44 picks of 14s rove for the filling. All the threads are drawn double through the heddles as shown on the draft. The full

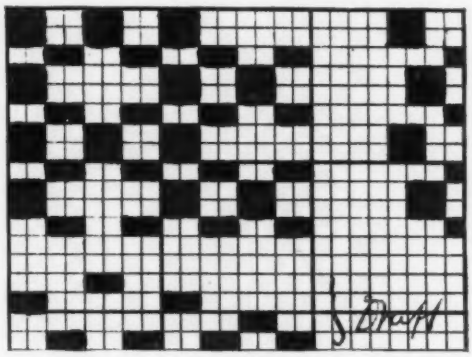



FIG. 7.

design and dobby plan is given. When woven these styles have a pleasing appearance.

Fig. 7 is another matting style made to the same particulars as Fig. 6. This style is very effective and fashionable.

Fig. 8 is a fancy dobby pattern, a new style and very neat. The warps are made of one color or white throughout, but ordinary and mercerized yarns are used, as given below:

Warping pattern:

2 threads sky blue ordinary 32s
4 threads sky blue mercerized 2/40
4 threads sky blue ordinary
4 threads sky blue mercerized
4 threads sky blue ordinary
4 threads sky blue mercerized
4 threads sky blue ordinary
4 threads sky blue mercerized
2 threads sky blue ordinary

—

32 threads in 1 repeat

This plan will come in to the design reading from right to left. The particulars are 64 threads per inch, 32s ordinary and 2/40s mercerized warp, 72 picks of 40s weft per inch. The full design draft and dobby plan are given.

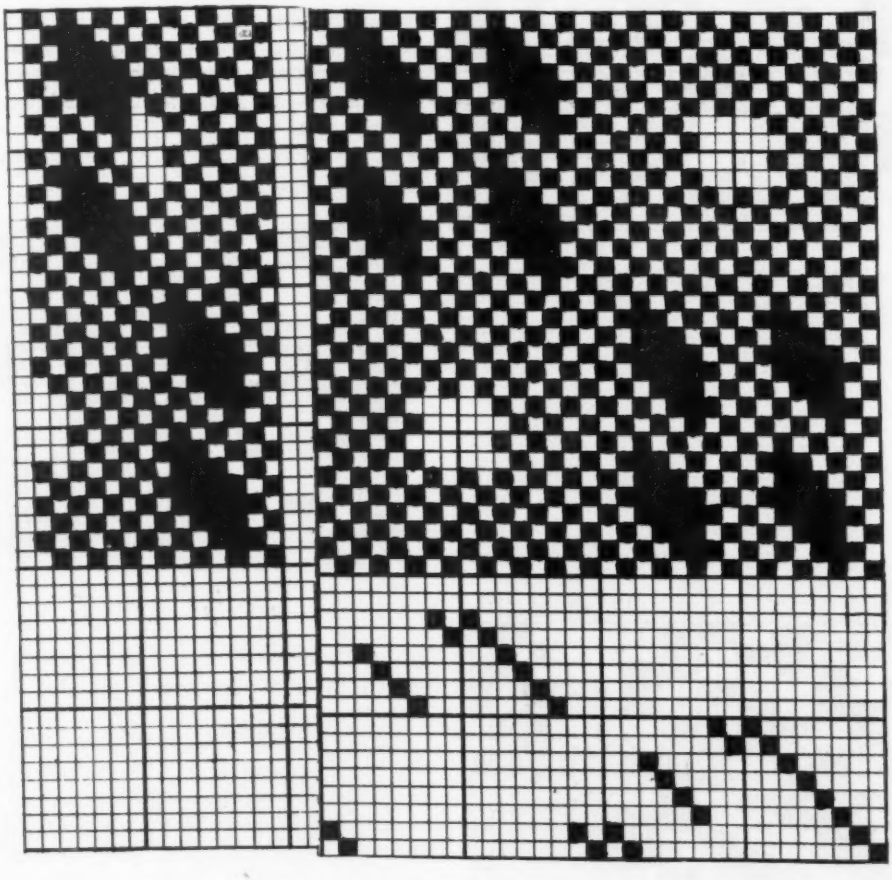


FIG. 8.

Fig. 9 is a neat and pleasing style for white cloths made to the following particulars: 68 threads per inch, 20s warp, 56 picks of 16s for the filling. A very soft finish is desirable. Colors may be used to advantage in the design given especially on the matting weave. The full design on 16 heddles is given.

Fig. 10. This is a style desired for mercerized goods, the spots being arranged in the order of a 5 end satin. With fine yarns this is very effective. The particulars are: 88 threads per inch, 50s Egyptian warp, 92 picks per inch 54s Egyptian weft for filling. These are woven grey, afterwards bleached or dyed, mercerized and finished in the cloth.

---

In 1907 the German waste mills besides using their home production imported 60,391,225 pounds of linters and 72,379,360 pounds of general cotton mill waste.

The increase in spindles in the Southern states has been as follows: 1860, 295,359; 1880, 561,360; 1900, 6,267,163 and 1908, 10,661,308.

## ENGLISH NOTES.

*(By Our Special Correspondent.)*

Consular figures for the half year tell tales of the activities in Bradford of American wool buyers. Their invoices, January to June, add up to the respectable sum of $4,260,000; roughly $2,500,000 more than in the same period last year. They have paid good prices and have forced others to pay high prices, or to leave wool alone. Their attention has been confined chiefly to select lots in light condition and—as a wool dealer "B" writes to the Bradford Observer about a certain sale at Melton Mowbray—"The fact of lots apparently alike selling in one case for 12 1/4 pence (24 1/2c.) and in another at 9 pence (18c.) is quite easily explained by whether it has been valued with the idea of sending it to the U. S. A. or not. Anybody present at the last London wool sale in May will quite readily understand that." Thirty-three per cent. on raw material; 6 cents a pound in addition to a 12 cent duty composes a sum that is conceivably worth the attention of somebody.

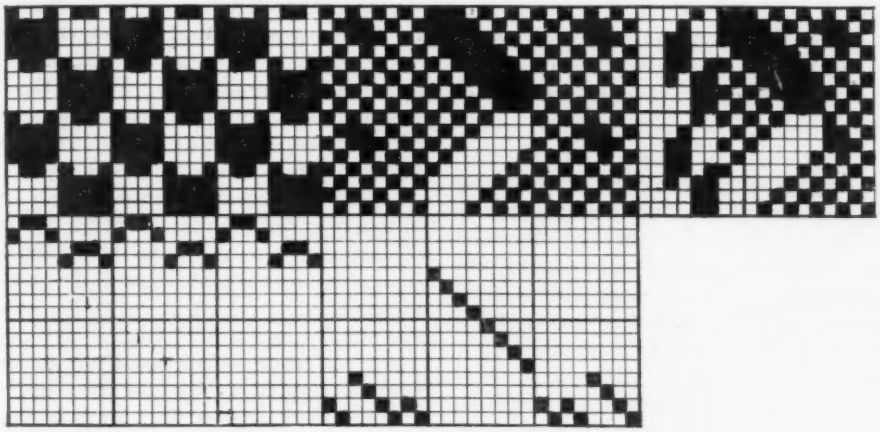


FIG 9.

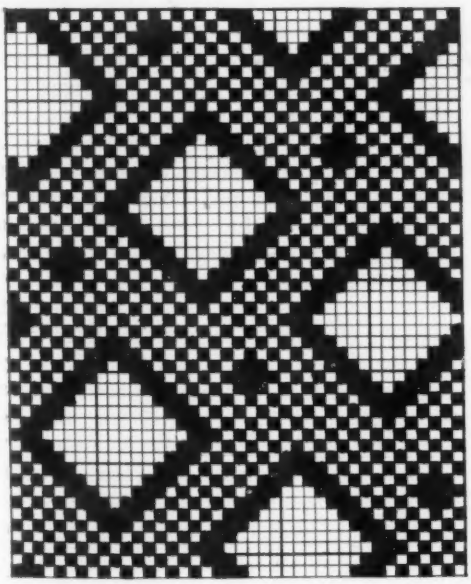


FIG. 10.

Other features in the half-year's returns are the increases of $525,000 in cotton linings, $175,000 in worsted coatings and $215,000 in machinery from the Bradford district. The gross trade of the six months is $9,378,000 and the net increase $3,940,000.

* * *

Something has been heard of the occasional scouring of English wool on the back of the live sheep. More curious still is the news that unclipped wool is sometimes dyed —or at all events tinted. Hardwick sheep are colored in a tasteful maroon, Dartmouth

sheep are brick-tinted and Hampshires have their noses artificially blackened. These pains are taken for the show-yard, not for the wool market, and the leading judges are discouraging the act, just as they discourage the browning of eggs and the oiling and painting of poultry. Naturally only a very choice few of the sheep are ever colored except for identification. A patch of red ochre on the breech tells farmers which ewes are in lamb.

• • •

A leading woolen manufacturer speaking of the productivity of industry goes back to 1873. In that year his firm had twice its present number of cards, more looms and more operatives. Nevertheless, his mill is now producing more cloth than ever, and if one takes the new 1907 figures of persons employed in the British woolen and worsted industry it is shown that there are 40,000 fewer persons employed than in 1889. Yet the population has increased, imports are lower than then, and exports over 20 per cent. higher. Unquestionably more woolen is worn, for more raw wool is retained for consumption and larger cards and faster looms offer the only possible explanation for the apparent decline.

Knit goods occupy an evergrowing number and in place of the 12,000 people of 40 years ago there are now employed 40,000 in the British hosiery industry. Cotton industry employs 576,820—a number greater than ever—which represents an access of 54,000 in seven years. Silk (29,000) and jute (40,000) show a steady diminution and on the other hand flax (100,500) begins to increase its roll of employes.

• • •

Rule 3 of the Yarn Contract Rules of the Manchester Yarn Contract Conference says pressed 10-pound bundles of cotton yarn must contain not less than 9 lbs. 14 ozs. On careful testing, certain bundles of two-fold gassed yarn were found to weigh only 9 lbs. 8 1/2 ozs. Query: Ought the seller to make an allowance equal to 7 1/2 ozs., or only to 5 1/2 ozs. per bundle? The answer by the Yarn Section of the Manchester Chamber of Commerce is that unless the buyer stipulated for 10 pounds of net yarn, 5 1/2 ozs. is the correct allowance.

Again it was asked of the Manchester Chamber whether half-hanks measuring 390 to 405 yards ought to be accepted. The reply is that 420 yards is the correct length for half-hanks and that the buyer may reject yarn which shows an average of only 400 throughout the bundle. When the bundle averages 420 the buyer must pass variations of 5 per cent. above or below correct length. If the buyer chooses to take 400-yard hanks as substitutes for 420 he may do so and may properly come on the spinner for a suitable allowance. The decisions are valuable evidences of trade custom and deserve to be memorized.

• • •

An elaborate rainproof cloth testing apparatus rigged up by the firm in London that has most interest in stimulating the sale of porous rainproof garments, may be thus described. There are two rods electrically heated which supply warmth, representing body-heat, and across these the cloth under test is tightly drawn by tension arrangements. Below the cloth a wooden piece with a corrugated surface, moved back and forth by an electric motor, supplies an imitation of inward rubbing or movement. Above the cloth is a shower bath attachment with pressure gauge to show the force of the artificial rain. On this frame cloths are tested for their waterproofness and it may be of interest to know that the ordinary "rainproof" cotton or woolen cloth usually fails in 7 minutes with a 5-pound pressure of water. The best result has been obtained from a specially proofed cotton fabric which was still turning water after 3 hours' heat and rubbing from the machine under a fall of water delivered at 10 pounds' indicated pressure. The special rainproofing in point is done by secret means which probably involve something more than the ordinary steeping in acetate of alumina and subsequent dressing with waxes of high melting-point. The process—whatever it is—affects all but the neutral dyes and until recently could only be applied to gray goods.

Something is heard of a process for treating linens and cottons with celluloid dissolved in ether, in amyl acetate or in acetone. A barrier to its employment is the extreme susceptibility of celluloid to fire. The process may or may not resemble that which produced "pegamoid," a substitute for leather in upholstery and valises and for varnished wall paper. Pegamoid was a celluloid-faced cotton fabric and it is no more heard of. Cellulose-faced cottons are still being made on lines previously described. Either by chloride of zinc or some other solvent a proportion of cellulose is first liberated from the fabric and then precipitated upon it. The War Office uses this cloth for maps and the posters of a steamship company are being lithographed upon the same. The cloth is opaque, strong and immensely durable for purposes of this kind.

* * *

A snub has been the only answer to the petition of the Yorkshire woolen picker and card-room men for 12 cents an hour, no overtime, no night work and no working during meal-time. Manufacturers have given the circular no reply and a strike is talked of. Lancashire operatives press for the abolition by law of fines for faults in weaving and do so pungently. Fines, they maintain, do not bring about the designed result and give the bad employer an undue advantage over the good one. They contend that the very employers who impose fines are the ones notorious for the bad weaving of their cloths. In the cotton and in the worsted weaving trades we have mills renowned for the faultiness of their work and, in every known instance, they pay poor wages, realize poor prices and receive claims themselves which are in the nature of fines.

* * *

Examination of a recent vote on the question of raising the age at which half-time labor may begin reveals some curious facts. Women are more opposed to the proposition than men and it was in the districts in which women workers predominate and half-time is most customary that opposition showed strongest. The voting was 18 to 1 against in some places, but in Manchester where there is no half-time working of importance the vote was only 3 to 1 against. The hostility of women is of course explained by the fact that they are the executive heads. The husband gets his "spending brass" and the wife solves the problem of how to live on what remains.

* * *

It is manifest that England has some good dyers who have been educated in every branch and by-path of their art, but they are not all chemists. "What is sulphuric acid?" asked one—who was perfectly familiar with the uses of "oil of vitriol" and who only knew sulphuric by that name. Another was told to ascertain by weight the strength of a barrel of formic acid that had been delivered. He reported that one pint (imperial) weighed 17 1/2 ounces! Had the solution been unadulterated water the pint would have weighed 20 ounces. The dyer, who was really a good man at rule-of-thumb color work of his own kind, had no better idea than to accept as a standard pint a quantity which he guessed to half-fill a quart pot. Another of the kidney wanted to introduce pounds of soda into his bath to counteract the supposed acidity of soap-bark.

Employers are moved to despair of dyers of this kind who know nothing of science and whose whole trust is in the eye. Strange as it might seem it would be entirely true to say that there are dyers who never make notes and never refer to formulae. They do well for a while, they have experience and judgment and in those respects excel some men of more education. But it is the defect of the rule-of-thumb man to lose confidence when affairs begin to go badly and experience or no experience, employers begin to find that they cannot afford to keep these destroyers of cloths.

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At the present time the world's estimated number of spinning spindles in work is as follows: Great Britain, 53,471,897; Combined Europe, 40,314,575; United States, 27,846,000; India, 5,756,020; Canada, Mexico, Brazil and other countries, 3,407,435, a total of 130,795,927.

## THE SELF THREADING SHUTTLE.

*BY WILL NELSON.*
Supt. Neuse River Mills, Falls, N. C.

The self threading shuttle has been a boon to weavers and a blessing to the race at large. Why? Those who have had experience in weaving mills, especially the older ones in the older countries, well remember that many weavers were made sick by sucking in the yarn and refuse that gathered in the shuttle eye. Not only that, the many lips that have touched the same shuttle has caused the spread of disease. The white man's plague has most certainly been furthered by the sucking of filling through the shuttle eye, and it is not a stretch of imagination to declare that untold suffering with its attendant evils to past, present and future generations can be traced to the drawing into the human system of refuse cotton and the contact of the human lips with the unclean shuttle. It does not require actual contact for one to realize how disease can be transmitted. For example, much has been written about the spread of disease through the medium of old paper currency, but this spread of disease by the old fashioned shuttle has been left severely alone. As a weaver I have been sickened by the thought of drawing into my lungs what might have been left on the shuttle by an unclean fixer, and as fixer the same repugnance arose from the thought of an unclean weaver. I welcome the self threading shuttle that will tend to do away with the evil, and the self threading shuttle is most certainly a benefit.

There are many different kinds of self threaders, all having some good points. I use the Williams on our Kilburn looms, and a number of looms around us use the same kind. If a self threading attachment is convenient, does not cut the filling, and will stay in place in the shuttle, it is of great value. I do not consider the self threading shuttle a means whereby the wages of an operative can be reduced, although I believe it increases efficiency. Many thousands of self threaders are used in this country, but there are many mills that have not yet adopted them, either through a prejudice on the part of the operative, poor judgment by the authorities, or the lack of an efficient self threader for very fine work.

## THE TESTING OF TEXTILE MATERIAL.

*BY J. H. LESTER, M. Sc. F. I. C.*
A Paper read before the British Association of Managers of Textile Works.
(Continued from July.)

Of the lea-testing machine used for ascertaining the strength of yarn, much has been said in condemnation by others, and it is indeed a crude, though, I consider, a very useful machine. If it is to be retained, surely we may ask the makers to provide it with ball bearings in place of the cone centers. The wrap reel of twenty years ago still remains very much the same, and it is still either used or constructed so that if a cop of yarn is being reeled the resulting count will be apparently coarser than if the same yarn were reeled from a hank. The introduction of all but one of the tension devices I have seen has the curious effect of making the difference in result even more marked. At the same time, I must admit that the instrument of my own design, which probably overcomes all defects due to uneven tension, is somewhat too complicated for other than laboratory use.

The principle upon which strength testing machines are almost universally constructed for textile testing requires investigation. Most of these instruments are evidently constructed with the idea of stretching out the sample at a regular speed until it breaks, and very great care is often taken to ensure different machines running at the same rate of apparent extension. Practically, however, the rate of extension depends quite as much upon the character of the material as it does upon the rate at which the machine is driven. Obviously, the unfairness of the result will be greatest with samples which are most elastic, for if inelastic samples are tested on these machines, the conditions will always be identical.

It is then most extraordinary to note that practically the only machines which work on the principle best suited for elastic material

such as yarn and cloth, are made for that very inelastic material, cement. In the well-known Ades machine, which, I understand, is looked upon as a standard in this country, the load is added at a constant rate, and though it is difficult to say what advantages would follow upon the adoption of a similar method for textiles, yet this is obviously the only method that can take rank as a scientific test. It must result in the test being made in less time than at present, and with no sacrifice in accuracy, and there is no doubt that a well-made machine on the lines of the Ades would be largely adopted if once well designed and made for the special purposes mentioned. It would, of course, be possible to extend our view of testing were we to consider the various methods adopted, and as to how they might be improved upon, but this opens up so wide a field that it must be left outside our present survey.

### THE MEANING OF TEST FIGURES.

Perhaps the greatest difficulty the manager has to contend with in going through a list of results of mechanical tests, is that of interpreting the meaning of the variations which are always very noticeable when several results of testing similar material are brought together. The most elementary difficulty to be got over is that of recognizing the fact that a variation from 1.1 to 1.2 is quite as great as a variation from 110 to 120, and we shall never quite get this difficulty out of our calculations until we develop the habit of reckoning these variations in terms of percentage.

Next comes a difficulty in comparing results where the method of testing is not particularized. It is quite useless to judge of the character of a yarn from the bare fact that its count varies in different places from 51s to 55s. Everything depends upon the lengths of yarn measured in arriving at the separate results. Suppose, for instance, the figures mentioned, 51s to 55s, are obtained by testing 4 leas together, we shall very likely find that lea tests will vary from 50s to 56s; that tests on a quarter of a lea (taken, it may be, out of cloth) will vary from 48s to 50s; and since these figures are in fact actual results from a by no means exceptional yarn, it is clear that their significance is really considerable, and may be serious. The obvious conclusion to some is that testing is of no use at all, if, as follows from the figures cited, the manufacturer may put 54s weft into his cloth, but that a test taken out of that cloth may show either 48s or 50s.

I put it to you, however, that another and better way of looking at the matter is to acknowledge that if a cloth is made from weft averaging 54s, one should not expect to get more than an odd test out of the cloth here and there showing 54s. It is only by taking out a very large number of tests from a very great number of places in the cloth that a true average can be obtained. A test taken from, say, two yards of cloth even, may give a result very different from the average result of all the weft used in completing the order; and just as the manufacturer takes very great care in making a large number of tests of the yarn he receives, he should, at any rate, insist upon a reasonable number of tests being taken out of cloth when a complaint is made upon the ground of wrong counts.

The spinner will seldom settle a claim based upon a test made from a handful of cops taken haphazard from the same place in the same skip, and it is no more reasonable to expect a manufacturer to settle a claim for fine counts upon a test made upon an odd yard of cloth containing no more or even less yarn. Whether in buying or selling, as a spinner or manufacturer it must be borne in mind that the test is of value in proportion to the manner in which the sample has been selected from the bulk it is supposed to represent, and that, after all, the tester is only responsible for the material he is given to test. Preferably, of course, the tester should be made to take his own samples from the bulk, and be made responsible not merely for a sample but for the bulk itself.

The expression of results as graphic curves is a matter well worthy of consideration, and a modified system is very easily applied even to ordinary tests of the count of yarn. Let us suppose that ordinary lea

tests of 60s are in question. The test book is ruled with horizontal lines marked, say, from 50 progressively to 70, and vertical lines are ruled through these. Each test is to be recorded by a dot on the horizontal line indicating the particular count, and at the point where it crosses the vertical lines, the tests being recorded on the successive vertical lines. A good level count will, of course, show a number of dots all along the 60 lines or thereabouts, whereas the degree of variation, as well as the general tendency to being coarse or fine, can be seen at a glance. In point of fact, when once one has used such methods as these, they are found to give a far more rapid and accurate impression of the character of two samples under comparison than can be obtained from the inspection of a list of figures.

In many cases of investigation, the use of curves is simply indispensable, especially where each thread has to be tested separately for count, tension, or twist per inch, in order to ascertain the cause of a stripe defect. I have, indeed, met with more than one case in which an inspection of the mere figures resulting from the tests did not satisfy me of the cause of damage, but, on plotting out in curve form, no possible doubt could remain.

### SPECIFICATIONS.

Very short reference must be made to what has come to be known as "specification" work, because for the moment it only interests us in the particular direction of suggesting improvements over existing procedure in the matter of contracts. The system as we know it today arose substantially with the War Office, spread to other Departments of Government, is now very generally adopted for all Government supplies of textiles, and is spreading with considerable rapidity among large users of cloth of all kinds. Railway companies, municipal authorities, asylums, and practically all such large consumers are now represented among those who buy their material according to a close and definite specification, and subject to accurate testing of the material delivered, rather than leave the matter of acceptance or rejection to the whim of an inspector not always possessing the capabilities of an infallible expert.

One effect of the extension of "specification" work has been that of greatly developing the use of the miscalled dynamometer or strength-testing machine, as supplied to cloth, tapes, cordage, etc. The mere existence of machines provided in the first instance to satisfy specification requirements has in numerous instances led to the adoption of the strength test for entirely different material. But in some directions the effect has been still more far reaching, and as an instance the modified methods of constructing various fabrics where strength is of importance may be cited.

Formerly it was the custom of manufacturers to provide cloth with entirely unnecessary weight and strength in the weft direction, but weak and thin in the warp. Naturally, of course, the actual testing of the cloth for strength has shown how weight and strength were being wasted where they were not required; and although many designs are still hopelessly badly balanced, the past ten years has certainly shown an improvement. If ever the time should come when it may be worth while for traders to adopt closer conditions of contract, the specification forms already referred to may well be consulted, for in most cases they are usefully instructive, but occasionally show to the practical man how not to do certain things.

It is high time, and indeed it is getting rather late, to apply the methods of science seriously and systematically to textiles; that already we are threatened by challenges for scientific supremacy in this matter from Germany, and, if I mistake not, the same will apply to America also before the next ten years have passed; and finally that we have all the material and all the men necessary to carry out development for our own collective and commercial benefit, if to these things we have we will but add the energy we commonly and properly infuse into our football, our motoring, or our golf.

The day of "guess work" management is rapidly passing away, and in its place we are having in many directions properly systematized management upon what is, after all, a true scientific basis, the only instances I need quote being those of the use of card indexing, vertical filing, and accurate costing. Let me then place the following before you as a "business proposition": The testing department should exist (1) To economize in the purchase, use, and sale of raw material and product; (2) to detect faults in raw material and product; (3) to improve the processes of manufacture; and, lastly to make such tests as are otherwise incidental to purchase and production. If, on a proper basis of computation, the department does not pay for its own maintenance, exactly the same steps should be taken as would follow upon the inefficiency of the clerical, sales, or other department.

CONCLUSION.

There still exists in the minds of many the idea that the only industrial use of one who has specialized on the scientific side of the subject is as a tester. What is the result? Little or no training is supposed to be necessary, and the tester is neither expected nor desired to carry out the mechanical operations given him to do in other than a mechanical way. He is a mere machine. In as direct and practical a manner as I can, I have tried to impress upon you the reality of the fact that it must be worth while to have the best men obtainable to carry out the technical work of the laboratory, placed in the position (as that department should be) of responsibility for the quality of all the material received and sent out.

This cannot, of course, apply to the smallest factories, where the manager must be his own technologist, clerk, and salesman. But, as the operations of the factory increase, the manager finds that he cannot keep all the books himself, so he engages a clerk; he cannot sell all the product himself, so he installs a salesman; he cannot examine all the material himself, so he adds a tester. The clerk and the salesman are carefully selected from among a hundred other men experienced in their particular line, and, as the factory increases in size, their positions assume a greater responsibility.

The testing department, however, seldom follows this natural process of development and specialization, and the operators are unfitted, even if they were allowed, to interfere with the operations of the factory, outside the walls of the testing room. In other industries the testing department, laboratory, or whatever it may be called, is pushed for all it is worth; it is made to pay its way according to the cost sheets, and is recognized as a technical center around which in some sense the whole factory revolves. The men capable of running such departments as I refer to are not mere theorists by a very long way; they are capable of applying their knowledge to the production of results. The whole object and use of a technical school, as I understand it, should be in the training of such men. They will be the leaders of industry in the next generation, and the commercial progress of that generation will be in definite proportion to the value of the education we are providing today.

## NEW ARRANGEMENT OF WORKERS AND STRIPPERS ON WOOLEN CARDS.

An American carder has been experimenting with a new arrangement of workers and strippers on woolen cards, on which he has recently secured a patent. His description of the new method is of interest, but it is not likely that carders will be quick to approve of the innovation in advance of an actual test. The inventor claims that smoother and more uniform yarn can be made by this process. Fig. 1 is a sectional drawing showing the cylinder, workers, strippers and extra rollers employed; Fig. 2 is an enlarged view of one worker with stripper, roller and surface of cylinder. The cylinder workers, 2, also covered with card clothing in the usual manner. The strippers, 3, are covered with textile fabric, leather or other suitable material that will insure a comparatively smooth surface, which will support the sliver

in a continuous unbroken web or fleece. The workers and strippers rotate in the direction indicated by the arrows. The web of the material under operation in passing around the main cylinder is alternately caught up from the main card by the workers, then removed by the strippers and passed to the main cylinder again. A comparatively smooth surfaced roller will act as a stripper to remove the fleece from the workers and pass it to the main card.

FIG. 1.

The strippers, being covered with leather or other smooth material, can be set very close to the cylinder, say 1/64 of an inch. When the card is in operation the surface of the strippers becomes coated with grease or other foreign matter from the stock, causing complete contact of the grease covered stripper with the cylinders. The friction of the wire covered cylinder against the grease covered stripper removes any excess of grease, keeping the contact uniform. The fiber, by this close and even contact of the strippers and cylinder, is spread uniformly

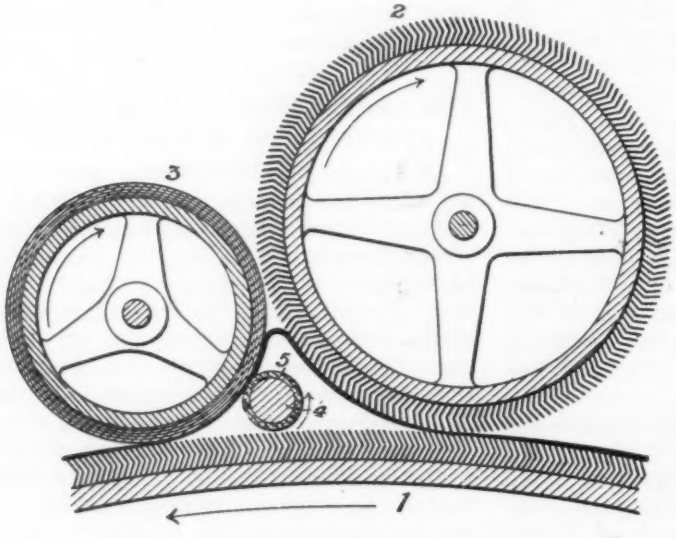

FIG. 2.

FIG. 3.

FIG. 4.

over the cylinder, allowing an equal portion of the stock or fiber to be taken by the doffing rings.

If desired, the wipe roller or stripper may be fluted, as shown in Fig. 3, or have small holes bored into it, as shown in Fig. 4, thus enhancing the stripping qualities. In both cases the surface will be comparatively smooth, and will have a solid body instead of the penetrable body surface formed by the card clothing.

The strippers, 3, being coated with leather or other smooth material and presenting a substantially smooth and solid surface to the clothing of the cylinder and tension rollers, allow the fibers to pass over the surface of the strippers. Much larger workers than usual can be used, bringing a greater surface of the card clothing into contact with the stock between the cylinder and workers, as the stock is not carried over the top of the workers.

The object is to effect a drawing and straightening of the fibers as the sliver, sheet or web leaves the strippers. Tension rolls, 4, as shown in Fig. 1, lie over close to or in contact with the strippers, 3, and, being rotated in the proper direction, effect a drawing action between the rollers and the strippers while the fibers are being taken up by the main cylinder, causing the fibers to straighten out, removing from the finished slubbing the usual twisted and confused arrangement of the fibers. By having comparatively smooth surfaced rollers for the strippers, the drawing and straightening action is enhanced and the fiber is not torn as with toothed clothing.

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The number of spindles in the United States has increased six millions since 1900; it is estimated that the number of spindles in Great Britain has increased eight millions in the last three years.

During the fiscal year ending June, 1907, the import of cotton manufactured into the United States amounted to 63 million dollars, more than one-half of which consisted of laces and embroideries.

## SILK THROWING.

*BY JAMES CHITTICK.*

(Continued from July.)

If the gums in the silk are very free a less quantity of soap and oil and a shorter time in the bath would be sufficient to do the work, but if the gums are very hard it will require more time and material to do the softening. After removing the skeins from the soaking bath, the water has to be squeezed out of them. This can be done by passing them between wringer rollers, or, better still, folding them up in open mesh bags or packages and whizzing them in a hydro-extractor until no more water comes off.

The skeins are then in a damp condition, feel soapy to the touch, and it will be found that the gummy places have got quite soft, though if allowed to dry up again these places would regain much of their hardness. It is desirable, therefore, at this stage to have girls open up the skeins and rub the gums, that is, manipulate them so as to loosen or free the threads from each other. These open skeins can then be hung on racks and put into a drying room, where, with suitable apparatus, they are speedily dried and can then be taken out of the room and allowed to stand so as to regain their natural moisture.

In this shape the skeins are in the very best condition for winding, being free and open and having a normal amount of moisture in them, and the winding and other machinery can be run at the highest practicable speeds and a good product and good work obtained. The soap and oil which remain in the thread have also a useful effect in minimizing the action of electricity which at times is apt to give trouble.

Some throwsters, however, do not go to the trouble and expense of having the gums rubbed and the silk dried off, but they put the skeins on the winding frames in the damp condition in which they come from the hydro-extractor. This practice is not to be commended, as some parts of each skein will be drier than others, and the first skeins going on the winding frame will be wetter

than those which come on later. As the silk stretches most when it is dampest, a lot so wound will naturally have very irregular tension throughout, leading to trouble in subsequent processes.

It may be assumed that the amount of soap and oil to be used will vary for each lot. As it would be difficult to alter the solution for every lot, the usual course is to use such proportions as would be sufficient for the average lot, special orders being given when some exceptional lot is to be soaked. In using the best soap and oil on silks with fairly free gums, a total weight of soap and oil equal to about 1 per cent. of the weight of the silk may be found sufficient, but with the ordinary qualities of soaps and oils that would be employed, and with the usual run of silks, throwsters find that it is convenient to use 2 per cent. or over as a regular practice.

It would naturally be inferred that a throwster, having to pay for the soap and oil that he so uses, would not use any more than just what was necessary to do the work, but the excessive employment of these substances affords an easy means of covering up careless work which has resulted in undue waste. This matter of waste is a very troublesome one.

If a few frames were run on high class silk, under the immediate eye of the overseer and with very experienced help, there need be but little waste. The writer has repeatedly had best re-reels thrown into tram, under such conditions, with a waste not in excess of half to three-quarters of 1 per cent. Such results could not be expected from a whole floor or from the average run of silks that might be encountered. At the same time the waste on good silk, according to conditions, should generally be kept down to somewhere from 1 1/2 to 2 1/2 per cent. Of course, poor silk would make more waste than good silk.

Estimating that in practice the soap and oil used in the softening of the gums of the silk would add to its weight 1 1/2 to 2 1/2 per cent., and that a similar amount of waste would be made in throwing the silk, it would follow that in many instances the weight of the thrown silk would about correspond with the weight of the raw silk sent to be thrown, the gain in soap and oil counterbalancing the waste made. Hence manufacturers as a class have come to expect back from the throwster about as much weight as they sent to him.

(To be continued.)

## DRAFT AS APPLIED TO COTTON YARN PREPARATION MACHINERY.

*BY BOLSTER.*

(Continued from July.)

SECTIONAL OR INTERMEDIATE DRAFTS.

While the rules already given on draft will apply practically to any machine where draft is used, it will be understood that they usually represent the total draft of the machine to which they refer. The total draft is the draft between the point where the cotton first enters the machine and the point where it leaves the machine. The exact amount of total draft in any machine will be determined by the part such machine is to take in the general reduction of the strand upon which it is operating, while this in turn will be determined by the fineness of the counts or thread to be produced.

The total draft of a machine can usually be divided into sectional or intermediate draft; for instance, the total draft already found by Fig. 1 may be divided into two intermediate drafts as follows:

First, the draft between back and middle rolls.

Second, the draft between middle and front rolls.

To find these drafts by means of the gearing, use same rule as when finding total draft. The rolls between which the draft is found must be considered as feed and delivery rolls irrespective of their relative positions with any other rolls.

Example: If the draft between back and middle rolls, Fig. 1, is to be found, the middle roll becomes the delivery roll of the two, and its diameter must be used as such. On the other hand, if the draft between the mid-

dle and front rolls is to be found, the middle roll becomes the feed roll of the two, and its diameter must be used in the calculation as the back or feed roll.

Using the gearing shown in Fig. 1, and applying the general rule for draft, let us find the draft between the back and middle rolls.

Gear at back 28 × 1 inch dia. of middle roll ÷ gear in middle 26 × 1 inch dia. of back roll = 1.077 draft.

To find the draft between the middle and front rolls, we commence with the gear on the middle roll and follow the connection or train of gears to the front roll; in this calculation we ignore the diameter of the back roll and simply consider it as a shaft carrying the two gears, 28 and 60. Then:

26 × 60 × 95 × 1 1/8 inch ÷ 28 × 40 × 15 × 1 inch = 9.924 draft between the middle and front rolls.

The 40 gear between the 26 and 28 gears has been omitted because it is simply a carrier gear and will cancel itself out of the equation.

Another point of importance is that the product of the intermediate drafts equals the total draft; therefore the two drafts found will give 9.924 × 1.077 = 10.688 total draft, which agrees closely with the previous results.

### BREAK DRAFT.

On practically all machines using "drawing" rolls in cotton yarn manufacture, it has been stated that a draft change gear is used whereby the total draft can be regulated. It may be mentioned, however, that when a draft change gear of a different size is used, it changes only one of the intermediate drafts, and other intermediate drafts on the machine remain the same as before, unless some other change is made in addition to the draft gear. To distinguish the intermediate draft thus changed, it is usually referred to as the break draft. Owing to the fact that the total draft of a machine equals the product of all the intermediate drafts, it follows that the changing of one intermediate draft will result in the total draft being changed also.

This is illustrated by changing the number of teeth in the draft gear, shown in Fig. 1, from 40 to 45 teeth and noting where the change takes place and its effect upon the total draft.

The diameter of the back and middle rolls, and the gears connecting these two rolls, have not been changed; hence the draft will be the same at this point as it was before changing the draft gear; viz:

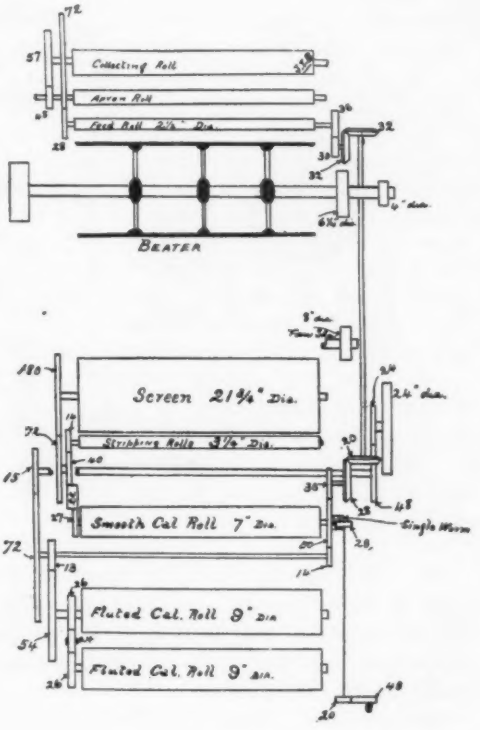



FIG. 2.

28 × 1 inch ÷ 26 × 1 inch = 1.077 draft between middle and back rolls.

Let us now find the draft between the middle and front rolls with a 45 draft gear, keeping the same rolls as before; then:

26 × 60 × 95 × 1 1/8 inch ÷ 28 × 45 × 15 × 1 inch = 8.82 draft, in place of 9.924, which was found with the 40 draft gear.

From the above it will be seen that when the draft gear is increased in size it increases the speed of the back roll. This also gives a proportionate increase to the middle roll. The speed of the front roll remains the same in each case. This therefore changes the ratio of speed (or draft) between the middle and front rolls, which we refer to as the break draft.

The total draft after the change would be equal to $1.077 \times 8.82 = 9.499$. To verify this we may use the draft constant previously found, and find draft by dividing same by the draft gear as follows:

Constant (427.5) divided by draft gear (45) equals 9.5 draft; which is practically the same as found above.

### DRAFT GEAR CALCULATIONS.

To find draft gear when changing counts or hank, but using same hank roving in creel.

Gear times counts or hank being made divided by counts or hank required equals gear for counts required.

Example: If we are making 40s yarn with a 43 draft gear, what gear would be required for 34s yarn?

$43 \times 40 \div 34 = 50.5$ gear.

The draft change gear on these machines usually drives the feed roll, therefore an increase in its size will speed up the feed roll and decrease the draft.

Example: If a 40 draft gear gives a draft of 6, what draft will a 48 gear give if situated as above?

Rule: Draft gear on $\times$ draft $\div$ gear to

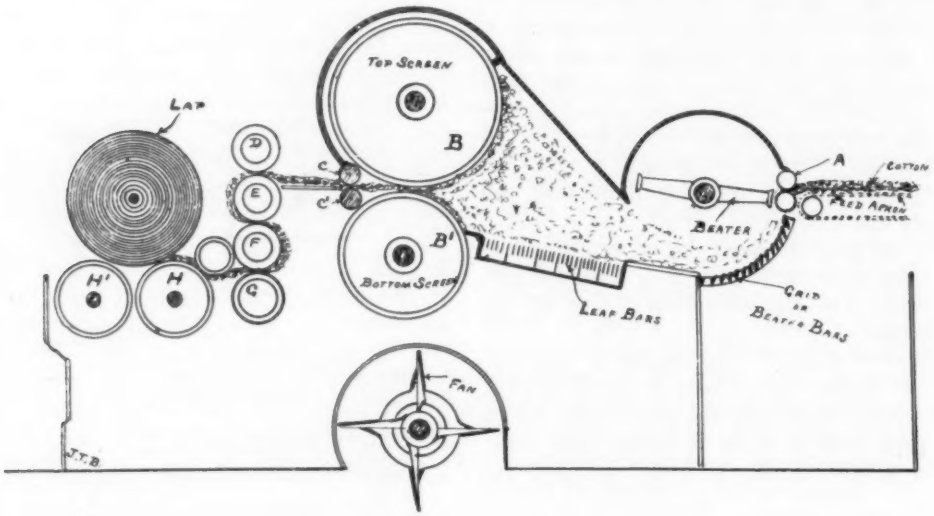



FIG. 3.

be used = draft with new gear.

$40 \times 6 \div 48 = 5$ draft.

Again if a 40 gear gives a draft of 6, what gear will give a draft of 8?

$40 \times 6 \div 8 = 30$ gear.

It will be seen from the above that the draft times draft gear equals in this case a constant, and when this is divided by the draft will give draft gear, and when divided by draft gear will give draft.

### ATTENUATING DRAFTS AND TENSION DRAFTS.

The sectional or intermediate drafts are in either one of the classes known as attenuating drafts, or tension drafts. The first refers to such intermediate drafts as are recognized as giving an appreciable amount of drawing-out or attenuation to the stock; and it is

principally upon these drafts that the actual reduction of the material in any of the machines depends. The second or tension draft refers to the draft between different points in the machine and is used principally to form a tension on the material with a view to keeping the strand tight.

Figs. 2 and 3 represent the plan of gearing and section of the principal parts of a breaker picker. The main draft in this machine occurs between the feed rolls, A, and the screens, B and B′, Fig. 3. Whenever the total draft of the machine is to be changed it is usually done by changing the speed of the feed rolls and keeping the screens and the calender rolls the same speed. This change does not affect the various calender rolls and screens, so their relation to each other will remain the same. The draft between these being small, such intermediate drafts are what has been referred to as the "tension drafts."

By gearing shown in Fig. 2 the draft between the feed rolls and screens will be represented by the following:

$36 \times 32 \times 20 \times 30 \times 27 \times 72 \times 21\frac{3}{4}$ inch $\div$ $30 \times 32 \times 28 \times 50 \times 40 \times 180 \times 2\frac{1}{2}$ inch $=$ 1.208.

The 22 gear between the 27 and 40 is simply a carrier in this case.

When the cotton leaves the screens it passes between the stripping rolls, C and C′, which are intended to carry the cotton away from the screens. In order to do this the roll must revolve at the same surface speed as the screens or the cotton would collect between them; on the other hand if the draft was too great the sheet would be strained or stretched between these points and produce unevenness in the lap. A small draft is advisable to provide sufficient tension without tearing the sheet. By gearing shown in Fig. 2 the draft between the screens, B and B′, and the stripping rolls, C and C′, Fig. 3, will be as follows:

$180 \times 40 \times 3\ 1/4$ inch $\div$ $72 \times 14 \times 21\ 3/4$ inch $=$ 1.067.

The next tension drafts occur between the stripping rolls, C and C′, and the smooth calender rolls shown at D, E, F, G, in Fig. 3. In Fig. 2, gearing only to the bottom roll, G, is given; this being shown as 7 inch diameter. The draft between the stripping rolls and the bottom smooth calender roll will equal $14 \times 7 \div 27 \times 3\ 1/4 = 1.116$.

Both the 40 and 22 are carriers only.

This draft, 1.116, is subdivided into 3 smaller drafts as follows: Between C and DE, 1.032; between DE and EF, 1.04; and between EF and FG, 1.04.

A slight draft at the above places is also necessary because the pressure applied to these four rolls has a tendency to spread the sheet of cotton or practically squeeze it out into a greater length, which must be taken up by having a slight increase in the surface speed of each successive roll. The next tension draft on this machine is between the rolls G and H, Fig. 3, shown as a smooth calender roll and fluted calender roll at Fig. 2. This last draft is intended to keep sufficient tension on the sheet at this point to assist in making a lap that, while being firm, will unwind more uniformly than if the sheet is slack or permitted to buckle before being wound onto the lap.

The amount of draft between G and H will be equal to $50 \times 13 \times 9$ inch $\div$ $14 \times 54 \times 7$ inch $=$ 1.105.

The total draft of the machine is divided into the following sectional or intermediate drafts.

Between A and B Fig. 3 draft $=$ 1.208
Between B and C Fig. 3 draft $=$ 1.067
Between C and G Fig. 3 draft $=$ 1.116
Between G and H Fig. 3 draft $=$ 1.105

Multiply these together and we obtain a total draft equal to 159; this agrees closely with the total draft formed by the previous rule, using gears shown at Fig. 2, thus:

$36 \times 32 \times 20 \times 30 \times 13 \times 9$ inch $\div$ $30 \times 32 \times 28 \times 14 \times 54 \times 2\frac{1}{2}$ inch $=$ 1.59.

On account of the small total draft usually employed in a breaker picker, the break or main draft between the feed rolls and screens is not much more than the other intermediate drafts. On finisher and intermediate pickers the difference would be more marked.

PICKER DRAFT BY WEIGHT OF LAPS.

It is a common practice to feed 4 laps at the back of intermediate and finisher pickers. When the weight of these is given, it is possible to find the draft without the necessity of using the size of all the gears, providing the weight of the finished lap is also known.

Example: To find draft of a picker when number of laps fed, weight per yard of laps fed, and weight per yard of laps delivered are given.

Multiply number of laps fed by their weight per yard, and divide result by weight per yard of lap made.

Example: Suppose we feed 4 laps, each 13 ozs. per yard, and produce a lap weighing 12 ozs. per yard; what will be the draft?

$13 \times 4 \div 12 = 4.33$ draft.

This is the total draft and includes also the reduction caused by waste.

If however 2 per cent. waste is made in the above machine, the actual draft by gearing would be equal to $13 \times 4 \times .98 \div 12 = 4.24$.

To find the weight per yard made, when draft, number of laps fed and weight per yard of laps fed are given:

Multiply number of laps fed by their weight per yard and divide result by draft.

Example: If we feed 4 laps, each 12 ozs. per yard, into a machine having a draft of 4 1/2, what will be the weight per yard delivered?

$4 \times 12 \div 4.5 = 10.66$ ozs. per yard.

As no allowance for waste has been made, the lap would be from 2 to 3 per cent. less than the above weight per yard.

(To be continued.)

The exports to the United States during the year were as follows: Jute, 286,550 bales; rejections, 20,691 bales; cuttings, 454,557 bales, as compared with 216,829, 20,719, and 209,052 bales, respectively, during the preceding year. The exports to the United States during the year ended January 31, 1909, were the largest in the history of the trade.

## THE MANUFACTURE OF PAPER CARPETS, RUGS AND MATTING.

*BY WILLIAM SCHOLES.*

(An address delivered before the Alumni Association of the Philadelphia Textile School with introductory remarks by the President of the Association.)

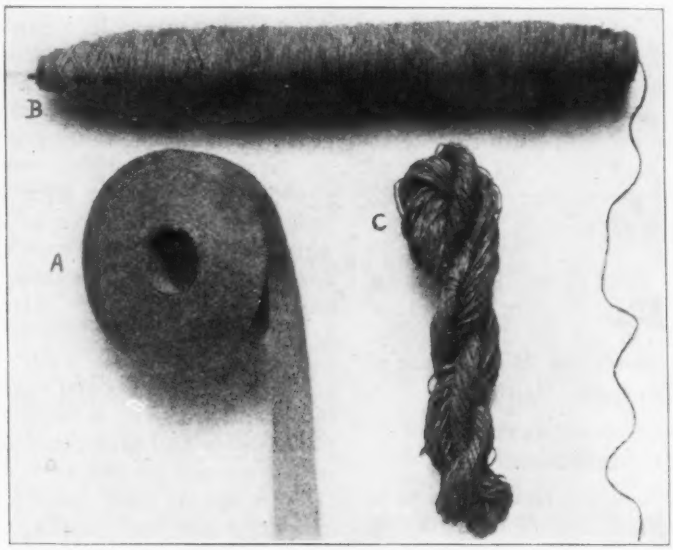
Our word "carpet" seems to have been derived from the Latin "carpeta," meaning a woolen cloth, and while we use it to designate a floor covering, in ancient times its use was far more diversified. The Oriental people employed carpets both in sitting and reclining, as well as in kneeling during their devotions, this fact leading up to their adaptation as a covering for furniture. The earlier forms probably owed their ornamentation to embroidery, a rather expensive mode of embellishment, which of necessity restricted their use to the wealthier classes, the poorer people being compelled to content themselves with a thin layer of straw or sweet-smelling grasses.

Historians make mention of the period of 1589 to 1610 as the time of the commencement of the making of fabrics which more nearly resemble those now known as carpets. It is recorded that the industry was introduced into France from Persia at about that time, and at a little later, in 1664, the French minister, Colbert, founded a manufactory, which was followed in 1677 by his successful efforts to induce the King, Louis XIV, to purchase the Gobelin carpet works and make it a government institution.

From France the art is said to have spread to England, from which country some export was made to America, although we are told that woven floor covering in this country prior to the Revolution was practically confined to domestic rag carpets. An advertisement in the New York Gazette of June 30, 1760, makes mention of an offer to sell some few "Scots" carpets, this being one of the names given to the fabric which afterward came to be known almost exclusively as ingrain, although it has also been extensively called Kidderminster, from a town of that name in England, a center of its manufacture.

The war of the Revolution and the feeling

engendered by it put a check on importation from Great Britain, and encouraged some to attempt domestic manufacture. The latter part of the year 1791 witnessed the erection by William P. Sprague, at Philadelphia, of the first carpet manufactory in the United States, the first product being a hand carpet for use on the floor of the National Senate Chamber. From then on plants for the manufacture of ingrains and similar fabrics sprang up in various parts of the Eastern States, but up to 1840 all such were woven by hand, and it was not until 1860 that the use of power became general, reaching, in Philadelphia alone, to upwards of 4,000 looms.




A. ROLL OF PAPER FROM WHICH THE THREAD IS MADE. B. PAPER THREAD IN COP FORM. C. PAPER THREAD IN SKEIN FORM.

The name ingrain was used in the thirteenth century to signify a process of dyeing various reds by means of coloring extracted from the dried bodies of the kermes insect, known as "kermes grains." The excellence of this material as a dyestuff, before the discovery in America of cochineal, gave rise to the use of the term ingrain as indicative of any deep and lasting color. It is next found as a term signifying that the goods had been dyed in the thread or grain before weaving, rather than having been stamped or printed.

The ingrain carpet possesses many admirable qualities, being reversible, and through its structure capable of lending itself to desirable ornamentation. When made of good material it gives excellent satisfaction from the standpoint of service. In spite of this, however, about fifteen or twenty years ago various influences made toward a tremendous curtailment of its use. Among these may be mentioned the cheapening of the production of tapestry Brussels carpets, the popularity of China matting; the demand, although short lived, for a new variety of jute rugs, which, while they were quite low-priced and pleasing in appearance, turned out to be far from satisfactory when subjected to wear, and finally the general desire for rugs on polished or prepared floors, rather than for carpets which had to be tacked to the very edges of the floor.

An ingrain fabric in the form of a rug,

known as the art square, was pushed in an endeavor to meet this demand, and at the same time other substitutes came forward, each due to some peculiar influence. One notable cause and effect is found in the so-called "arts and crafts" movement, which gave rise to a certain call for Colonial goods and those savoring of hand work. The old rag carpet has been revived and improved. It is now made in approved designs and colorings, and from rags, which, while they were not made for the purpose, have never been put to any other use, the principal source of supply being the short ends cut off pieces of goods in the print works and formerly considered as waste.

This very brief general historical sketch brings us to the point where the speaker of the evening takes the matter in hand and, from his store of experience, tells of his earnest efforts and the very gratifying success which has attended them. I take pleasure in introducing Mr. William Scholes, of the firm of William Scholes & Company, who will speak to us on the "Manufacture of Paper Carpets, Rugs and Mattings."

### FIBER RUGS AND FIBER MATTINGS AS FLOOR COVERINGS.

The making of rugs and mattings of fiber is purely an American idea. The history of fiber rugs and fiber mattings dates back only a few years, although it has made its way to the front very rapidly in the face of so many different floor coverings, the reason of this is, as one might say, in a class all by itself. It is the only rug of its kind on the market that is made entirely out of fine tissue paper.

The paper is first dyed in all colors, then the process of manufacture begins. First there are the original jumbo rolls of paper from two to five feet in length and weighing as much as 700 pounds to the roll. These rolls are first run through the slitting machine, which cuts them into small strips, whatever size desired, according to the size thread wanted, whether it be for heavy or light goods; after going through the slitting machine it is then on small rolls which have been cut up into inch width or half-inch width strips, according to the size yarn desired. Then these rolls go through a dampening process, stored away in a special room built for the purpose of humidifying the strips. When they have been in the humidifying room three or four days they are ready to go to the spinning frames, which also have a humidifier on, then they are spun into fiber yarns. These strips go into the machine flat and come out a nice, even, round thread, which has a nice polish, and looks like a new piece of straw, such as is grown by nature. It is remarkable to see the machine in operation, turning out such a nice, fine, clean, even thread which is used in making fiber rugs and mattings. After going through the twisting machine it goes on large spools which mold about 100 pounds of yarn each; after the spools are well filled they are taken to another frame, which winds them into cops to fit the shuttles for the loom to weave. Here comes one of the most difficult parts, the weaving, as is known the world over for its great variety of fabrics and styles; but the weaving of fiber mattings and rugs is not known the world over. It is strictly confined to Philadelphia and Massachusetts. When the cops are ready for the loom, the loom must be of a special kind, made for the purpose of getting the best results; then when the loom is ready, and the warps prepared and all drawn in, then comes the design and cards; the design then becomes the most important part. It must be artistic, and suitable to sell and to suit many different tastes. After the design comes the coloring process. While a design might be made very artistic it is very necessary to color it up with fine colors to bring out all the good qualities there are in it. Many a good design has been spoiled for the want of good colors put into it to show it up to its best advantage, and make it attractive. After we get the colors suitable then comes the weaving of the product ready to go on the market.

After the rugs and mattings are woven they must go through a finishing process to make them show up well in the store, that customers will see them to their best ad-

vantage. They are run through a size box composed of a mixture suitable to stiffen them and set the color more firmly. After going through the stiffening box they go over the calenders, several in number, which are filled with steam, and these dry the rugs and matting, making them nice and stiff that they lie flat on the floor, giving them a nice appearance for the homes they are to go into, for which the fiber rug has proven itself to be a class by itself, for the purpose. It is used for summer homes, bungalows and cottages. It is very artistic and durable; it is absolutely sanitary under any conditions of weather or climate; it is odorless, creating no smell in damp weather whatever. This ends the explanation of the all fiber rugs and mattings.

After completing the all fiber rugs and mattings other experiments and necessities brought forward another grade, which we call a bungalow or porch rug, composed of part wool and part fiber, and I think this is more durable for some purposes than the all fiber. It will not show the wear as easily as the all fiber; when dirt gets on it, it is easily swept. The wool in it brightens up the rug, leaving the fiber in the ground for its support. As a porch rug, it has no equal to date. It will stand the hardest kind of wear, and all kinds of weather. Should it get wet from rain, it will do it no harm, it will help to cleanse it and brighten it up. Just hang it up or lay it upon the grass to dry, and it will be ready for use again when it is dried out, and it will look as good as new. This rug can be made in an unlimited variety of colors, to suit all kinds of tastes, as we dye the wool into many colors, and always combining the different colors of wool with the natural colors of fiber, there is nothing to fade, and by combining fast wool colors, it gives us a rug that will stand hard wear, and all kinds of weather; therefore, I can say it is the best porch rug to date, as well as the best rug for bed-rooms.

As the general public becomes educated to the value of fiber rugs and mattings, the more they will be used, and the less mattings will be used. The more fiber rugs and mattings used, the more for the American workingman, not only in the weaving of the rugs and mattings, but in the manufacture of the paper to be used. If we could only get a big percentage of the American people to use the fiber rugs and mattings in place of using so much straw matting, it would not only benefit the people, but the country, and we would not have to send so much of our gold to China and Japan for these straw mattings which are a curse to our country and our carpet industry. They are neither handsome nor durable.

According to Government statistics, 50,000,000 yards of straw matting come into our country every year. If the manufacturers of Philadelphia and the East could get 10,000,000 yards of this to make into fiber mattings and rugs there wouldn't be an idle loom in Kensington, which is known to be the largest carpet manufacturing centre, leaving 40,000,000 yards to come in from China and Japan. How soon will all the American buyers and people awaken to the fact that fiber mattings and rugs, made at home, will benefit the American workingman and the American people?

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The United States exported 7,569,315 bales of cotton and consumed 4,089,938 bales in 1908, and exported 8,503,265 bales and consumed 4,965,498 bales in 1907.

Consul Robert J. Thompson reports that the declared exports to the United States from the district of Hanover, Germany, amounted during the first three months of this year to $354,128, against $253,351 in the 1908 period and $616,529 in the 1907 period.

Sisal hemp has been cultivated in German East Africa since 1893. The increasing value of this industry is evidenced by the exports in 1906, the latest year for which statistics are available, which were valued at $334,500, against $141,500 in 1904.

The first power-loom built in this country for weaving broad silks was made by Wm. Ryle, of Paterson, N. J., in 1842, or two years after the loom for fancy weaving, by Crompton, had been put into operation by Samuel Lawrence in Middlesex County, Mass.

# Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring ,not for publication, but as an evidence of good faith.

For reply to questions that are not of general interest to readers of textile journals, such as those relating to the composition of yarns, analysis of fabrics, etc., we will charge the enquirer with the cost of the investigation.

## Bleaching Underwear.

*Editor Textile World Record:*

We are enclosing two pieces of underwear which we bleached at the same time; one, a piece of the sleeve, and the other, a piece from the body of the garment. When these goods left our bleachery they were both a pure white, exactly the same shade. After a year's time, these garments were returned to our customer in the shades which you see in the small samples. The garments were all right, but the sleeves were a pronounced cream color. He complained to us about this, and we are unable to fathom it. We are writing to you to ask if you will look into this matter and tell us, if possible, the reason for this marked change of color. We do not think it could be due to kier stains, as the color is too evenly distributed.

Bleacher (1096).

We think there is no doubt but that the trouble lies in the bluing this party used or in the fact that he has not used any at all. Goods coming from the bleach are a "dead white," and this will turn yellow with age very quickly. If he tinted the goods with "Danker's & Marston's Bleacher's Blue" he would get a blue white tint that would be permanent, and not affected by light, heat, climatic conditions or age. Some concerns make the mistake of tinting their goods with aniline, ultramarine, Prussian blue, and similar dyes, none of which are fast to all the requirements.

The goods from which these garments were made were probably tinted in the roll, and the body and sleeves may have come from different rolls. If the goods were blued properly with the right kind of bluing, parts of them would not have turned yellow, as in the enclosed samples.

Danker and Marston.

It is very difficult to understand how and why the samples of knit goods submitted should not both be the same color. This is one of the troubles that every bleacher of cotton goods has to contend with. It is difficult to trace the origin of the discoloration, because of the large number of possible causes. "Bleacher" says the goods were white when they left the bleachery. Have these goods been exposed to daylight? This would turn the garments yellow and the trouble might pass unnoticed by the overseer or the superintendent in charge. Is he sure the goods were boiled the proper length of time? Were extra bleaching agents used to produce the white, which is called "forcing the bleach"? This would cause the goods to turn yellow in a very short time after being stored away. Another cause, and one that will produce this result as quick as any other, is not having the chlorine neutralized. If chlorine is used for a bleaching agent, it should be strong enough and the goods should age long enough to make sure that the chlorine is neutralized. If this is not done the yellow tinge appears on the goods, especially if the store room is damp. This may occur in part of one batch of goods that have entered the process at the same time and gone all through in one lot. I have seen goods put in the kier and apparently get the same treatment all the way through, but when they were finished the difference was quite apparent. If the goods are bleached in the roll extra care must be taken in winding on the rolls so that the laps will be even, otherwise the uneven rolls will cause discoloration. If the roll is tight and hard in the center, as is generally the case, the result can easily be seen. There are numerous other causes that would cause the difficulty, such as exposure to the sun, lying in a warm room, and the use of inferior oils or soaps for softening. If the rolls are not wound on evenly and the goods are a little underboiled

this difficulty will develop in one roll. The outside of the roll where it is soft and slack will be a good white, while the inside where it is hard and tight will soon develop the yellow color. Delco.

### Ribbers for Hosiery.

*Editor Textile World Record:*

I want to make children's ribbed hosiery and should like to know who are the builders of the ribber that makes goods like the sample enclosed. You will notice that the welt is as perfect as the one made on the expensive flat machine.

Also kindly inform me what are the proper sizes for the ribber and number of needles for the following footers:

2¼-inch cylinder with 120 needles
2½-inch cylinder with 136 needles
2¾-inch cylinder with 148 needles
3 -inch cylinder with 160 needles
3¼-inch cylinder with 172 needles
3½-inch cylinder with 188 needles
3¾-inch cylinder with 200 needles

As you will see my machines are all fine gauge and correspond to 17 needles to the inch.

Revere (1093).

There are several manufacturers who build machines for manufacturing this kind of work, and their names are to be found in the advertising columns of the Textile World Record. Each of these standard makes of machines have their good qualities. One knitter will say the Brinton ribber is the best; another may say the Scott & Williams or Wildman machine is best. A knitter usually prefers the one he is most familiar with. I believe that any of the ribbers will give satisfaction if properly used. To secure the full welt mention of this should be made in ordering the machines. These machines can be had either with single or double feed, but if a full welt is desired on double feed machines it should be so specified in ordering. All single feed machines will give the desired full welt.

It depends largely on the class of work one desires to manufacture as to the number of needles to use in the ribber. If a ladies' or children's ribbed hose is desired it would necessitate a finer ribber than it would for men's half hose. However, it would not be possible to make half hose on the small machines, so I take it for granted that children's fine hose is desired and will give the correct size, number of needles and gauge. For the large sizes I will give the correct size and gauges and number of needles for both ladies' hose and men's half hose.

2 1/4 inch cylinder, with 120 needles.

3 inch ribber, 204 to 232 needles. 36 gauge dial needle, 36 gauge cylinder.

2 1/2 inch cylinder, with 136 needles.

3 1/2 inch ribber, with 248 needles, 36 gauge dial needle, 36 gauge cylinder.

2 3/4 inch cylinder, with 148 needles.

3 1/2 inch ribber, with 248 needles. 36 gauge dial needle, 36 gauge cylinder.

3 inch cylinder, with 160 needles.

3 1/4 inch cylinder, with 172 needles.

3 1/2 inch cylinder, with 188 needles.

4 inch ribber, with 298 needles. 36 gauge dial needle, 36 gauge cylinder.

3 3/4 inch cylinder, with 200 needles.

4 1/4 inch ribber, with 320 needles. 36 gauge dial needle, 36 gauge cylinder.

It will be seen that the same size ribber is used for the 3 inch, 3 1/4 inch and 3 1/2 inch machines. This is necessary owing to the fact that a 3 inch cylinder is considered a No. 9 machine, while the 3 1/4 and 3 1/2 inch cylinders are used for 9 1/2 and 10 machines. In the manufacture of hosiery half sizes are not made in the ribbed top; the half sizes come only in the foot. Thus we use the tops as follows:

Size 5 top for sizes 5 and 5 1/2.
Size 6 top for sizes 6 and 6 1/2.
Size 7 top for sizes 7 and 7 1/2.
Size 8 top for sizes 8 and 8 1/2.
Size 9 top for sizes 9 and 9 1/2 and 10.

The same ribber can be used for infants' size 4 and 5 tops as for children's 5 and 6 tops, also the same ribber can be used for sizes 7 and 8 tops. In case men's half hose is desired the correct size and gauge of ribber would be as follows:

3 inch, 160 needle cylinder.

4 inch ribber, 160 needles. 24 gauge cylinder needle, 36 gauge dial needle.

3 1/2 inch, 172 needle cylinder.

4 inch, 172 needle ribber. 36 gauge cylinder needle, 36 gauge dial needle.

3 3/4 inch, 188 needle cylinder.

4 inch, 200 needle cylinder.

4 inch, 200 needle ribber. 36 gauge cylinder needle, 36 gauge dial needle.

Merrill.

### Preventing Fog in Dye Houses.

*Editor Textile World Record:*

We are renovating our dyeing plant and would ask what is the practice in various modern dye houses of preventing or removing fog in the winter season? Munster (1107).

There are two different principles employed for this purpose. One is to install fans and expel the steam and fog. The other is to blow in hot dry air and prevent condensation. Steam pipes are frequently employed to keep the rooms warm. Large wooden hoods or conductors over the boiling kettles are frequently connected by ducts to the blower exhaust system so that the steam does not escape into the dye house. Good buildings, air tight construction with proper facilities for ventilation, double windows in the winter season, good circulation of steam or heated dry air will largely prevent the fog and fans will remove the little which does form. Ruckout.

In the ordinary equipment of a dye house, bleach or print works, due regard must be had to the nature of the liquids that flow from one place to another through pipes or conduits, and also to the material of which these pipes or fittings are made. With very few exceptions the usual stock liquors of such works either contain free acid or free alkali, either of which are equally destructive to brass or bronze fittings. It is a fact that strong oil of vitriol has little or no action upon iron or bronze, but when diluted even slightly with water it dissolves those metals rapidly. The same also applies to muriatic acid, while nitric acid acts without any water. Consequently valves and other fittings intended for acids should be made of stoneware.

The alkalies, soda, potash and ammonia are also injurious to all alloys made of copper, so that brass or bronze fittings should not be used. but iron employed instead. Since the wide use of the sulphur cotton dyes, it is the common practice to store the stock liquors in wood or iron tanks—copper or brass absolutely excluded, for the reason that as the dye must be dissolved in sodium sulphide, this chemical has a rapid corrosive action on such metals, forming in a very short time sulphide of copper at the expense of the copper of the fittings.

Hard water also acts injuriously upon valves, etc., and specially when hot, seems to destroy the rubber valve seals in a very short time. Louis J. Matos.

### Sharpening Beater Blades.

*Editor Textile World Record:*

How often should the blades of the beaters in a picker be sharpened? Of course, there will be some difference in the three processes, as the first is the most difficult, while the intermediate process is not so severe on the blades as the finisher picker. I would also like to know the best way of sharpening as well as the varying lengths of time intervening between the sharpening.

Clifton (1090).

This is a very difficult question to answer. The sharpening of the beaters depends upon the grade and staple of the cotton, some lots containing a larger quantity of foreign matter than others. It also depends upon how often the beater operates on the cotton, as some beaters run faster than others and some have more blades. For example, take a three blade beater and a two blade beater, they should be run in proportion the same as a pin beater, in order to give good results. Anthony.

### Wrinkles in Worsted Goods.

*Editor Textile World Record:*

Can you kindly give a reason for the wrinkles and cracks in worsted goods and method of removing same? Salem (1101)

If the goods are laid out properly, reeded so as to come off the loom not too wide, the finisher will be able to bring his goods out of the washers or fulling mills a fair width, say 56 or 57 inches, and have them come from the drying machine at 59 inches, even in cheap goods. Under these conditions there will be no trouble with cracks and wrinkles. If the goods are not laid out too wide they ought to be free from wrinkles. I would also suggest that a small pot eye be used in the washer. If a large one is used I would advise putting in two pieces in each eye.

Another factor is the soap. Any one using a poor soap cannot bring his goods to a proper width without having poor results and badly wrinkled goods. Conditions are

so different in every mill that it is impossible to say what is best until one steps into the mill that is having the trouble and sees for himself. Richmond.

## American and European Methods of Wool Carding.

*Editor Textile World Record:*

Please give me information on American methods of woolen carding, to cover the following points:

The cost of a set of woolen cards of good make.
Working of machine.
Production in 10 hours of 1, 2 and 3 runs.
Number of mule spindles supplied by card.
Necessary help to 5 sets of cards.
Number of spindles per operative in spinning room. Wilson (987).

(Continued from July.)

The bearings of the scale box must be kept clean and should always be in good order that it may give a uniform weight each time. The friction clutch and the pulley also needs to be looked after and the clutch should always have a good wire spring so as to ensure it working every time and be kept tight on the shaft. The small stud in the pulley should be set so that it will pass the clutch easily when the apron is not in motion. The scale weight should be set so the scale will fill about three-fourths full before balancing and should have a board in the feeder so that the stock will fall in the center of the scale. The small casting under the clutch should be kept bolted tight to the frame and set so it will release easily from the clutch and the small adjusting screw set so that the feed will stop the moment the scale balances over the center.

The feed apron should have a good feed on it and not run too fast, and should hold about four scale panfuls of stock. This may be done with a 12-tooth gear on the lower end of the small side shaft. The feed on the feed apron should not be beaten down too hard by the beater as it is better to have the stock enter the card as open as possible, as it will be easier for the card to do its work and will avoid the possibility of bunches. The feed rolls should be metallic on the first breaker together with burr cylinder, and should be fitted with good bearings for holding them in place when set; they should also be kept in good point and never allowed to strike. The bottom feed roll should be set very close to the burr cylinder so it will clean, and the top one set with 26 gauge to the burr cylinder. The burr guard should be about a quarter of an inch above the burr cylinder and the tumbler set with a 29 gauge to the burr cylinder and card cylinder and should be kept in good condition at all times.

On 1 run work the card may be set with a 28 gauge, which will be close enough for good work, but it may be set a little closer on finer work. The doffer may be run up to 16 or 17 r. p. m. and if set quite close to the card will keep the cylinder cleaner and require less stripping; it will also deliver a lighter drawing for the Apperly feed, which is of advantage in making even roving. The fancy must be set from 1/16 to 1/8 into the cylinder, but if set too hard will pack the cylinder with stock and injure the carding; the speed should be changed for different kinds of stock.

The clothing best suited for the first breaker on work from 1 to 3 runs is No. 32 steel for the cylinder, workers and strippers, with No. 33 for the doffer and fancy, and second breaker and No. 34 for the finisher. The gears on the cards must be looked after and not allowed to become filled with dirt and waste and must be set properly into each other. When running low stock at the doffer speed mentioned it sometimes happens that there is trouble with the web breaking under the comb. This may be overcome by changing the speed of the calender rolls and drawing slower from the doffer; generally a tooth or so will be sufficient on the small bevel gear on the stud on the card frame, or if using the Torrance balling head and creel, gears come for this purpose.

The bands and rolls on the Apperly feed should be kept clean and tight and it should have a compact feed at all times, but it must not be overcrowded or it will break more or less at the small rolls. The feed rolls must be set even and close so the feed will not draw to one side of the card and be heavier on that side. The long band should have a small leader on a long wooden roll so that it

will always run into place, or it may be put together a little tighter on the inside so it will run to the outside of the wooden roll. Above the leader and tumbler on the second breaker is the licker fancy for the purpose of keeping the leader free from loading with stock. This should be set into the leader hard enough to attain this object and also be set as close to the tumbler as will be necessary for it to clear. The setting on this card can be a little closer than the first breaker, provided the workers and strippers are perfectly true and have good bearings. They should be fitted with sleeve bearings, which keep waste out and do not let them work up in the poppets and rise from the cylinder.

The finisher with self feed is a double card finisher. The feed rolls need the same attention in setting in order that they may deliver an even feed the entire width of the card and make even roving. The stock is conveyed by an angle stripper to the last cylinder and the speed of this should be only enough to take the stock in an unbroken web from the doffer. The ring doffer must be packed and lined together perfectly with the bottom one near to the card cylinder and the top one as close as will insure even weight between both spools; for this reason some carders set the top doffer close to the cylinder and drive it faster.

The next machine in order is the condenser and the wipers should first be covered with leather wound very smooth and these covered with corduroy. The pocket apron should be set close to the wiper to prevent it winding with stock and the front aprons driven fast enough to take up all the slack in the sliver between the aprons. When the rings are narrow this prevents their tying together. The aprons should not be set too close together as this causes electricity in cold weather and the aprons soon wear out; the same results will follow if the eccentric motion is driven too fast.

The grinding of a set of cards depends a great deal on the care taken of them and the kind of stock put through them. I think the cards should be ground with a good traverse grinder about every four months. This will keep them in good condition and will pay for the time lost in grinding, by giving more production and being able to maintain a higher speed. In my opinion the traverse grinder is better than strickling. The ring doffers on the finisher should be ground lightly once each year and burnished out with a hand card filled with oil and graphite. This will reduce the burr on the point of the wire from grinding and leave them in good condition to part with the sliver. On low stock I have been able to get good results with a 14-inch doffer finished and ground in this way, making a speed of 26 turns per minute.

A 60-inch set of cards with two spools of 30 ends each should produce about 800 pounds of 1 run roving in 10 hours; of 2 run roving about 650 pounds, and of 3 run about 450 pounds. These should keep 600 spindles in continuous operation and a room of 5 sets of cards should be successfully managed by an overseer and six hands, leaving out the picking department. There should be an operator for every 300 spindles on 1 run work, but on finer numbers one operator can take care of 600 spindles. The number, however, depends greatly on the quality of the work and the ability of the operator.

Rembrandt.

## Mending Hosiery.

*Editor Textile World Record:*

**What is the most widely used system for examining and mending hosiery? Are the goods mended by the examiner or separated and put in dozens and then mended and reexamined?**

Buxton (1109).

The best method for mending hosiery is first to inspect them as they come from the knitting machine, taking out all the stockings that need mending and charging all the drop stitches and machine holes to the knitter. Tie the stockings that need mending up in dozens of pairs and send them to the menders. After mending have the goods inspected again. If this is not done the girls are liable to skip the work and do bad mending. "Buxton" should be able to get 90 per cent. of firsts out of all menders if the work is properly done. All bad mending is

charged back to the mender and not paid for. It would be almost impossible for the inspector to do the mending and inspecting. After inspecting the knitter's work, the goods are looped. All the looped work is then inspected for menders in looping and all bad work is charged to the looper. The goods to be mended are tied up in dozens and mended the same as before and then inspected. By following the above rule there will be very few menders in the finishing room.

The price paid for mending varies according to the class of work. From 3 to 6 cents per dozen pairs is paid in the grey and 5 to 8 cents per dozen in the finished or black.

Ravenswood.

## Wool for 5¼ Run Yarn.

San Paulo, Feb. 22, 1909.

*Editor Textile World Record:*

I am an overseer of carding in this 8-set mill and we are having difficulty in spinning the stock to the size ordered by the superintendent. I enclose a sample of the wool which he wants spun to 5 1/4 run. As you will notice it is harsh and brittle, as if it had been injured in the dyeing process. Our orders are all on the goods calling for this kind of wool. It cards badly, spins badly, and goes horribly in the loom. The weavers are paid by the day as they cannot earn their board working by the piece, and the production of the mill has dropped away down. I wish you would give me your opinion as to what is the cause of the difficulty. Rochambeau (1105).

When this letter was received we examined the stock and replied as follows:

I have your letter of the 22d with sample of wool which you are trying to work into 5 1/4 run yarn. It is my judgment that the stock is not fit for 5 1/4 run, being too coarse and short, and I am not surprised that you are having trouble with it. Of course you know that wool is sometimes made brittle and harsh in the dyeing process, but this does not seem to be the case with the sample you enclose. Of late years woolen mills have been deprived of the proper supply of raw material and as a result, have been forced to use inferior stock, causing such troubles as you are in now.

Nearly three months later we heard from "Rochambeau" again. In the meantime he had resigned his position at the mill where he had been employed as boss carder on February 22:

July 15, 1909.

*Editor Textile World Record:*

The reason I left the job at San Paulo was the poor stock. I sent you a sample of it. They kept telling me they would get better wool, but did not do it, so I got through of my own accord. The man that took my place could not do anything with it, so they cut it out. Rochambeau.

These letters disclose a condition with which every woolen carder has to contend to greater or less degree, the making of yarn from unsuitable stock. While the trouble may be aggravated by poor judgment in the selection of stock, it remains a fact that the managers of carded woolen mills encounter increasing difficulty in finding the wool of which the quality and price are suited for the fabric demanded by the consumers. The tendency during recent years to reduce the weight of cloth has made matters worse. The buyers have insisted on as close a texture in the lighter weights, and the only way to accomplish this is by spinning the yarn finer. This in turn necessitates the use of better wool. Thus the carded wool manufacturer finds the trade demanding finer raw material, while the wool on the market is growing poorer in quality, smaller in quantity and higher in price. The cause of this is the failure of the American wool growers to increase their clips to keep pace with the growing demand for wool goods, and to the fact that the specific duty on grease wool excludes the heavy shrinking wools suited for carded woolen goods.

## Sharpening Corduroy Cutters.

*Editor Textile World Record:*

The knives of my corduroy cutting machine get blunt too soon and cause a loss of production. The cloth has a soft filling of 1 1/16 staple. Would the knives cut any better if inch filling was used? Do you think a rough and uneven warp helps to blunt knives and to make them jump in cutting? Corduroy (1099).

Cannot "Corduroy" insert sharp knives without waiting to have the ones in use sharpened? In Hebden Bridge, the English home of the cotton cord trade, corduroys are cut mostly by hand. The machine makers, the Cotton Cord & Velvet Cutting Machine Co., Ltd., Huddersfield, Eng., say that in their opinion the length of the staple makes no appreciable difference to the life of the knife's edge. They add that "it goes without saying that the more perfect and even the warp is the better the results."

Wessex.

# KNITTING DEPARTMENT.

**For Knitting Mill Machinery, Equipment and Supplies, see pages 236 to 253. Also Buyers' Index.**

## THE KNIT GOODS SITUATION.

The past month has included the most of the selling season for 1910 spring lines, and it has been characterized as a very satisfactory event to manufacturers and agents. Nearly all lines appear to be in a well sold up condition with the exception of ladies' straight ribbed vests at from 75 to 95 cents, of which there are a great many lines on which business is still being earnestly solicited. Of course the buyers for the representative jobbers have been in the market, and at this writing many are still here, but their work seems to be about finished as far as actual buying is concerned. They ceased to look for lower prices on merchandise after about the 10th of July, and began to confirm all orders that had been placed conditionally before that time.

The heavy demand for goods for immediate delivery during the past month gives one some idea of the condition of stocks in the hands of jobbers and retailers, and indicates a very general clean-up of all light weight merchandise. Some manufacturers have been put to their wits' ends to take care of the demand made upon them for spot deliveries. Buyers have been urging them to accept orders for light weights, when it was very apparent that they ought to decline them, and change their machinery on to heavy weights, and we now learn of some manufacturers that put off changing their machinery for a month later than they ought to, and consequently, their fall deliveries will be delayed just so much.

Some manufacturers of porous lines have all the business they can take care of for 1910, and are now planning additions to their mills, so as to be in a position to increase their production. These lines are priced the same as last season, "Porosknit" and "Keepkool" being $3.25 for shirts and drawers and $6.25 for combination suits. These are followed by lines like the "Columbia" and "Setsnug" at $3 for shirts and drawers, and there are also several lines being shown that get to the retailers for 25 cent garments. It is reported by several of the jobbers that these lower price numbers were not successful last season, nevertheless some manufacturers claim to have booked some large orders for next season, more particularly for white at $1.85 and $1.90. We are informed that the "Setsnug" line has been disposed of entirely to one large men's furnishing house in Chicago. It was felt by many that the demand for this class of goods would have the effect of lessening the call for nainsooks and similar lines. Certain it is that the most widely known line of nainsook has been very scarce during the past six weeks, and although manufacturers were not in a position to name prices during the week of July 5th, buyers were sending in their orders very freely to be confirmed as soon as the prices were made. Of both nainsook and porous lines there is noticed a tendency to increase orders on the shirts and suits made with short sleeves with a corresponding decreased call for the sleeveless styles. The writer was shown one line of nainsook shirts and drawers offered by a Pennsylvania manufacturer at $2 per dozen. This gives the retailers a line to run at a very popular price of 25 cents a garment.

The demand for ladies' shaped ribbed goods made of plain stitch cloth continues to increase and lines may be found at $1.40 and upward. Some quite creditable looking garments are shown at $1.75 and $1.85 for long sleeve and high neck. The J. C. Roulette Co. are showing a line of plain stitch lisle with hand crochet trimming and Jap silk braid at $3.75.

Heavy orders are being placed on men's combination suits. The best selling styles being stained yarn ecru goods at $6.75 and $7 and combed Egyptians at $7.25 and $7.50. Most manufacturers making this class of

goods are putting on ribbed cuffs and anklets this season. There is also a good demand for combed peeler lines of men's suits at the above mentioned figures. The better grades selected are the lisles at $9.50 to $10.50 and the mercerized fabrics at $13.50 to $15. These are made in a variety of colors, but the larger sales are made on the ecru and white, with a fairly good quantity of blue and flesh color.

HOSIERY.

Some manufacturers of hosiery withdrew their spring, 1910, line from sale before July 10th, on account of having sold their entire production or as much of it as they thought safe and wise. There are a few manufacturers who refuse to book orders for spring delivery for the reason that they cannot place yarn contracts so far ahead. Some few manufacturers have purchased yarns for spring delivery, but the majority, according to report, have not been able to do so, and have simply taken chances in making their prices.

Opening prices were very low and were quickly advanced on the low priced lines. Full seamless 1 lb. 8 oz. ladies' hose were offered and sold for a short time at 65 cents, but were soon advanced to 75 cents.

Further advances are looked for and those that placed their orders early have unquestionably done wisely, as it is believed that not only will higher prices prevail later on, but that desirable merchandise will be very scarce.

The general condition of the hosiery market is healthy, and everyone looks forward to very big business. The 4-inch welt goods are going to be very popular and are bought by all who can afford to pay the additional cost. A few manufacturers have shown samples and taken orders for seamless mercerized lisle with the 4-inch welt top, while other manufacturers, after experimenting with this class of work on their samples, decided not to make any and to continue with either the garter top or the plain hose. The difficulty in making these goods with the wide welt is to have the lower edge of the welt straight, and the general opinion seems to be that they will not be made successfully.

Laces are given a good deal of attention for next season, and some very new patterns are being shown. The most popular are made of mercerized yarn and are boot patterns.

More mills are going into the manufacture of men's fancy half hose each season, and there are now several very extensive lines and novel styles. There is a dearth of anything new in ladies' fancy hose, except in the low priced goods designed for Southern trade principally.

As to colors, it is impossible to write anything of any value, for the shades wanted for another season will not be known until the dress goods and suit houses have opened their lines and the jobbers have commenced taking orders. Some buyers have covered their wants as far as quantities are concerned and have made arrangements to specify the colors later on. Tans are purchased freely for another season. The mills report a good duplicate business on summer and next fall lines and the jobbers' business is also improving steadily.

## A Knit Fabric.

*Editor Textile World Record:*

Kindly advise me how the enclosed sample is made and what kind of machine is employed to get the exact pattern. We are using the Branson ribber and make various patterns on these machines, but doubt very much that the enclosed sample can be made on such a machine. Any information as to how to make the enclosed knit goods will be greatly appreciated.

Atkins (1102).

I do not think the enclosed sample can be made on a circular latch needle and after trying to ravel the sample out think it was made on a German warp knitting machine called the "Rachel." My reason for coming to this conclusion is the number of threads in the goods and the fact that none of the threads would ravel straight across. This can be done on circular latch needle work.

Bernard.

In Germany the women earn 38 cents for knitting a dozen pairs of gloves which absorbs four days' work of ten hours each, thus netting less than one cent per hour.

## FULL FASHIONED KNITTING.

*BY PAVONIA.*

Fig. 1 represents a needle-bar as used on the Cotton system of knitting. Its position in the machine is such that the needles stand perpendicular, pointing upwards from the bar in which they are set. This bar contains about thirty inches of needles, and on it it is possible to knit shirts, pants, combinations, tights, ladies' drawers, vests, bathing suits, and many other goods. On the various builds of Cotton machines, the needle-bars are substantially the same, varying only in detail, such as weight, thickness, width, or in the method by which the needles are clamped into their fixed positions. Some builders have needles set in pairs, cast together at their lower end by soft metal, as shown in Fig. 2. Others are placed in small holes which are drilled in the needle-bars or in strips of brass which are fastened on the needle-bar by screws, shown in Fig. 3.

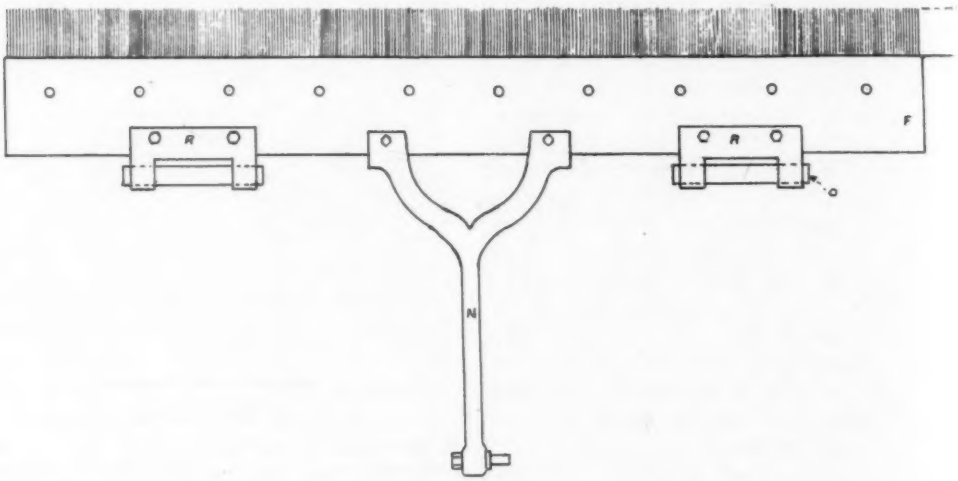



FIG. 1.

When the needles are fitted into holes, which have been drilled to a gauge of so many to the inch, they have a right angle turn on the end as in Fig. 4, and are inserted singly in the needle-bar. By unscrewing the plate which holds the needles in position, they can be removed separately. The needles which are inserted in pairs, cast together, are not used to any great extent in America, as most of the machines are of German and American construction, and they (the Germans), are the leaders in the single needle method.

In the time of the old flat-hand frame, the needles were all casted into pairs, and it was then that the standard of gauge was made. Fig. 5 represents a gauge as seen by the writer in use by these old time knitters, where the thousandth part of an inch in actual measurements were never dreamed of, although the accuracy of their work demanded hairbreadth adjustment. This gauge was three inches in width, and the gauge of a machine was and is now determined by the number of these castings of two needles, commonly called leads, that would fit in this three-inch gauge. If thirty leads fit between, then the gauge would be thirty; if twenty, then it would be twenty gauge, etc. By this method of gauging the needles, far greater accuracy can be obtained, than by gauging each individual lead. If the mould should be making the castings one thousandth part too large or too small, it could hardly be detected. By placing thirty of these leads side by side, and then

gauging, the variation would be multiplied thirty times and would be detected without difficulty.

The greatest difficulty with the leaded needles is their tendency to spread; sometimes they become loose, at other times crowded. A slight defect in the mould would be the cause of endless trouble. The

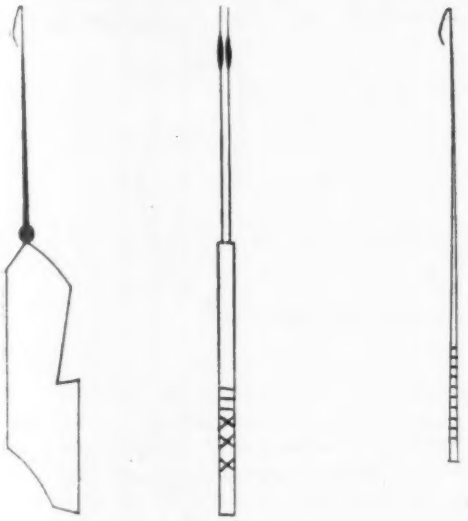
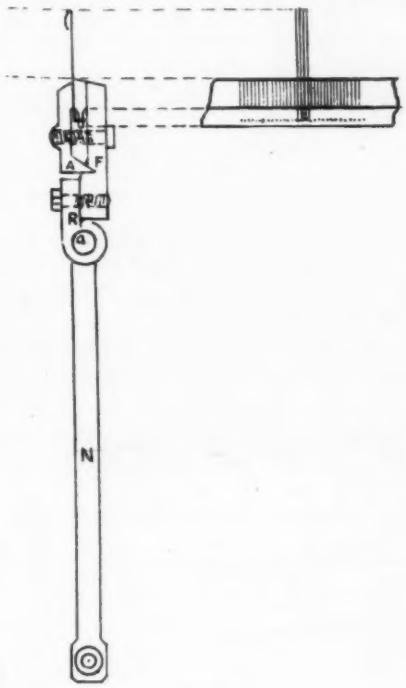


FIG. 2.

metal being soft, generally a mixture of block-tin and lead, it expands by being squeezed when tightening the clamps which hold the needles in place in the bar. When the needles are thrown off gauge in this manner, the only remedy is to recast the whole section and make a new start.

It should not be difficult to convince anyone in the face of these oft occurring evils, that the single needles, trick needles, are an improvement over the old leaded bygones. The holes into which the needles fit, and the grooves into which they are pressed by the clamping plates, are sized by very accurate measuring machines. On some of the best builds the holes do not vary one thousandth part of an inch in size or in the distance between needles, although on the finest gauges there are twenty-eight or thirty needles to an inch. On a forty-five gauge legger, there are nearly four hundred of these holes drilled in a single line of thirteen inches for each section. These holes are drilled accurately to gauge, and when once made must always remain at the same relative distances from each other, eliminating one of the greatest sources of difficulty in full fashioned knitting. As the needles are gauged correctly where they fit in the bar, it is only necessary to keep them perpendicular to insure a perfect knitting-bar.

Fig. 6 is a front view of a needle-bar on a ladies' hose legger, showing the plates which hold the needles in place. As previously




FIGS. 3.

stated, the needles are of the spring board type, and they form a straight line when in position in the bar. The straighter the bar, the better results in knitting.

The needles being all fastened in the bar, their movements are necessarily in unison, each one going through the knitting motion at the same instant, and not consecutively like the latch-needles. Each needle performs its different functions in unison with the thousands of others in the machine.

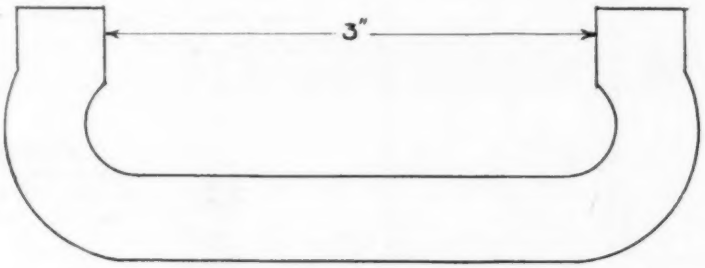
Before describing the various motions, it may be helpful to explain the general arrangements of the cams. Owing to its simplicity this part of the Cotton system is more easily understood than are the more complicated parts.

A general idea of the cam arrangement on a modern American-built machine is shown at Fig. 8. The shaft carrying the cams extends the whole length of the machine, and from it directly or indirectly, every motion of the machine, knitting and fashioning, is given.

On the shaft of an ordinary plain legging machine, which is in the neighborhood of thirty-five feet long, there are about seventy cams. On a footer, there are more of these cams, while on a machine built for making lace open-work hosiery or any of the various kinds of fancy work, the number of cams is much larger. Fig. 9 shows the method of fastening the cams onto the shaft. The

FIG. 4.

boss, Fig. 9, is of cast iron and bored to fit the shaft, the flange being faced up on the side next the cam. Set screws are used to tighten these bosses on to the cam-shaft. A drawing of one of the cams which are fastened on the bosses with bolts is shown at Fig. 10. These cams are also of cast iron and are generally faced on both sides and finished about one-half inch thick. A greater number of cams are made in halves and fit the shaft when the two halves are brought together.




FIGS. 5.

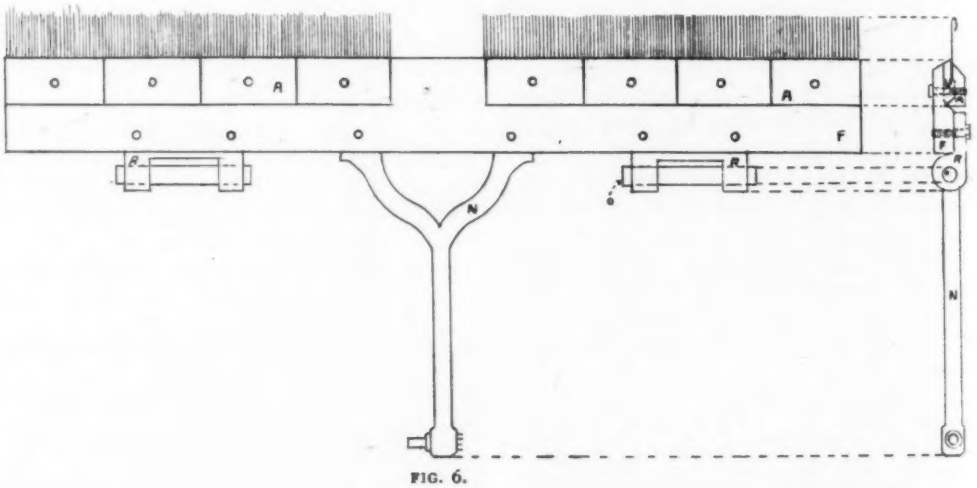
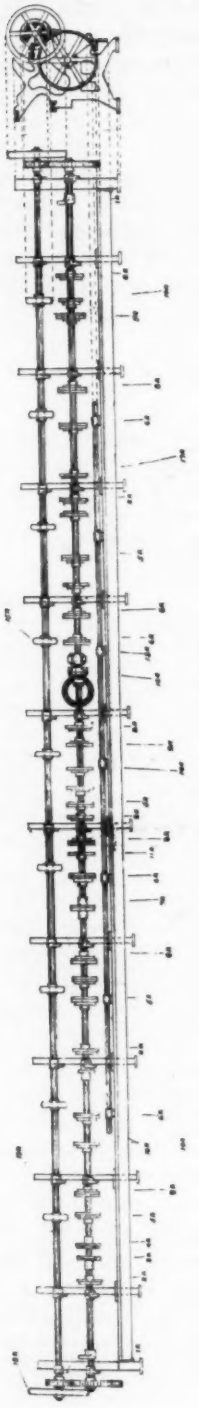



FIG. 6.



1a. Narrowing ratchet cam.
2a. Narrowing machine cam.
3a. Left shogging cam.
4a. Right shogging cam.
5a. Catch bar cam.
6a. Pressing cam.
7a. Coupling.
8a. Needle bar up and down motion.
9a. Splicing, stitch adjusting cam.
10a. Catch bar raises cam (up and down motion.)
11a. Loose course cam.
12a. Small gear.
13a. Clutch.
14a. Stick cam.
15a. Hand wheel.
16a. Stitch adjustment cam.
17a. Fibre tension realizer for fashioning.
18a. Fly wheel.
19 a. Wheel.

FIG. 8.

Making the cams in two sections is a great convenience in the event of the necessity for the removal of any one of them. It is occasionally necessary to make slight alterations which require that a cam shall be removed to make the change, or in case of a breakage. If they were all in one piece it would be necessary to strip the entire shaft

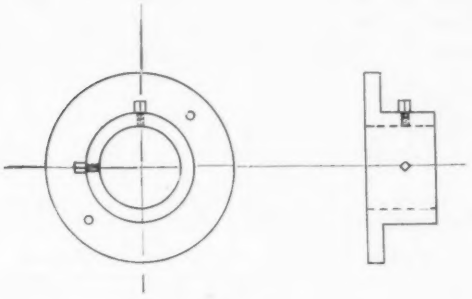


FIG. 9.

in order to get off any single cam. Anyone familiar with knitting machinery can readily judge of the result of such a disturbance. These half cams are securely fastened to the bosses, each half meeting its mate and forming a perfect unbroken path for the roller to travel as the cams revolve. Each one can be removed and replaced again by re-

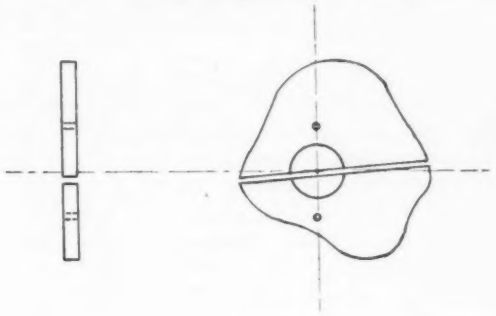


FIG. 10.

moving the bolt which holds it fast to the boss.

Many of the cams are of the same pattern. On a small two or four section machine, there would be required only one cam of a kind to make any one of the various motions, but on a large eighteen or twenty section machine, one cam of a kind is not

sufficient to impart some of the more important movements. To obtain a perfectly evenly balanced action in some instances as many as seven cams are required to perform the same function. These corresponding cams are distributed along the shaft at proper distances to enable them to do their respective share of the special work which they are designed to perform. The large Cotton machine of twenty or twenty-four sections is just so many single knitting machines combined in one. As far as the knitting-heads and needle-bars are concerned, this is unquestionably true, as it is also with the narrowing apparatus, but in some instances, where the action is very light, or where the motion is lengthwise, a single cam is able to control the entire combined sections. This plan is adhered to throughout the whole machine, and where one cam is sufficient to do the work, only one is used. In some instances only two cams are needed to give a certain movement to all the sections, and only two would be needed if more sections were added, whereas for other different actions there are three cams distributed at proper distances.

(To be continued.)

## ATTACHMENT FOR CIRCULAR KNITTING MACHINE.

A device, recently patented, is intended to provide means for taking care of the threads on a multiple feed knitting machine while they are temporarily out of action. At such times the threads are liable to become twisted and tangled, tending to draw the fabric up through the cylinder. They also interfere with the action of the needles and are liable to draw and distort the loops of the fabric. Fig. 1 shows a vertical section of a knitting machine equipped with this attachment; Fig. 2 is a plan of the machine; Fig. 3, a front elevation; Fig. 4, a perspective view of the attachment; Fig. 5, a cross section.

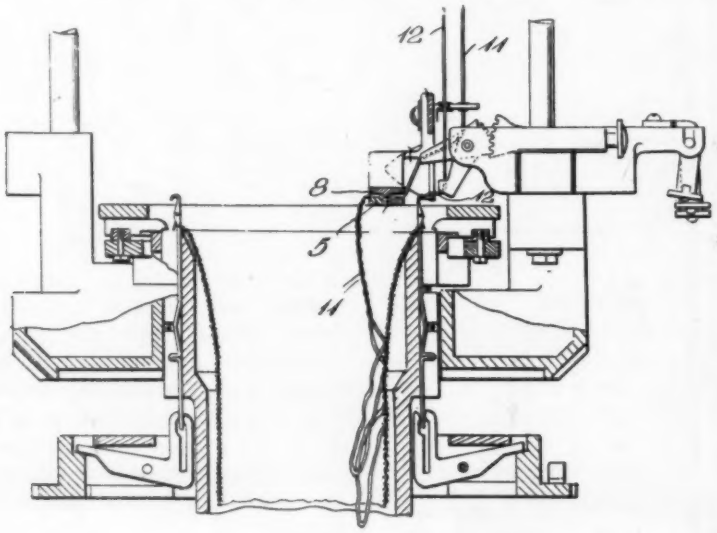



FIG. 1.

It will be understood that any number of threads may extend down the inside of the tube and in consequence of the revolutions of the machine become twisted, three threads only being shown in the form herein illustrated, the threads, 11, shown in Fig. 2 being the floating threads and the thread, 12, being the thread in operation for the knitting of the fabric. As the fabric feeds down through the cylinder, more yarn is drawn from the bobbins and the strands, 11,

are fed between the members, 5 and 8, and by the cooperating groove and rib formed on the adjacent faces thereof are held separated as shown in Fig. 2 and are prevented from twisting on the outer side of the attachment adjacent the cam cylinder.

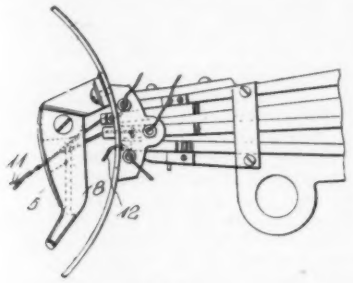



FIG. 2

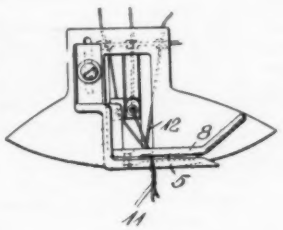



FIG. 3.

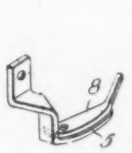



FIG 4.

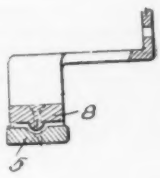



FIG. 5.

## KNITTING MILL NEWS.

**New Mills.**

Canada, Ontario, Hamilton. H. P. Long has equipped a knitting factory at 60 King William St. for the production of ladies' and children's ribbed underwear. The latest type of machinery has been installed.

*Illinois, Belleville. The Belleville Hosiery Co., recently incorporated with capital stock of $10,000 to establish a hosiery plant at this place, has organized with Eugene H. Newson as president, and Paul F. Vogel, treasurer, agent and buyer. They are building a mill, and will install 30 knitting machines for manufacturing 200-needle mercerized half hose. Dyeing and finishing also will be done. The plant will be operated by steam power.

*Indiana, Fort Wayne. Buildings for the Old Fork Knitting Co., recently incorporated as noted, will be under construction early this month, and will be completed early in October. Seamless and full-fashioned hosiery will be the product. Organization has not been completed, but T. E. Bennet will be treasurer, and R. P. Hinman of the Hinman Knitting Co., Decatur, Illinois, will be secretary, general manager, and attend to buying. Details of equipment have not been decided, and no contracts have been awarded. Steam and electricity will be used for motive power. In addition to manufacturing hosiery they will dye and finish the product.

*Massachusetts, Taunton. Rapid progress has been made on getting the plant of the Taunton Hosiery Co. in shape for manufacturing, and they are now working on orders. Alfred T. Prue is treasurer, agent and buyer.

*Michigan, Lansing. Nothing definite can be given regarding the location of the proposed new knitting plant of John Himmeloerger and William F. Hall. They claim to have received propositions from several cities in Michigan, and are considering the inducements offered. Mr. Hall has some improvements in knitting machinery, which he states decrease the cost of manufacture. These will be tried out in their plant. Mr. Hall may be addressed at 229 Penn Ave., South Lansing, Mich.

Minnesota, Minneapolis. Three knitting machines and three sewing machines are operated by the Eckert Knitting Co., Inc., on sweater coats. They expect to enlarge in the near future. The incorporation of this company with capital stock of $10,000 was noted recently.

*Mississippi, Meridian. The Priscilla Mills will be ready to begin manufacturing soon. The buildings have been completed. One hundred knitting machines, electric power equipment, etc., are being installed. As reported previously, this is practically a branch of the Alden Mills, New Orleans, La. O. E. Moers came from New Orleans to act as manager.

*New York, Hornell. The Merrill Hosiery Co., recently incorporated as noted, will build a mill on Bank St., 200 by 80 ft. Silk hosiery will be manufactured.

New York, Utica. A new underwear manufacturing company will begin manufacturing about September 1 under the style of the Supreme Underwear Mills. The capital stock of the new company is $25,000. Eugene J. Snyder is president; Arthur E. Snyder, treasurer and buyer, and Albert G. Neel, superintendent. The plant will be equipped with 5 knitting machines and 12 sewing machines, operated by electric power. Infants' and misses' underwear will be manufactured from a patented fabric, giving employment to from 30 to 40 hands. The product will be sold through Robischon & Peckham, New York.

*North Carolina, Morrisville. S. R. Horne will be sole owner of the proposed new hosiery company. He plans to manufacture a medium grade hosiery for men, women, and children on 100 knitting machines, operating the plant by a gasoline engine. A one-story wooden building, 32 by 120 ft., is to be constructed, and Mr. Horne does not expect to begin manufacturing before the early spring of 1910.

North Carolina, Tryon. George A. Smith and associates will build a mill and equip it for manu-

facturing knit goods. It is stated that water power will be developed.

*Oklahoma, Chickasha. The Oklahoma Cotton Mills Co., recently incorporated, as noted, with capital stock of $150,000, has organized with R. K. Wootten, president; L. M. Potts, vice-president; J. T. Abercrombie, second vice-president; and J. D. Chastain, secretary and treasurer. They will manufacture plain and fleece lined underwear, beginning manufacturing about December 1.

Pennsylvania, Bethlehem. At present the Jewell Knitting Mills, a new concern, is located temporarily at the Sterling Knitting Co.'s plant at Allentown, Pa. Before the end of July, quarters will have been secured at this place. They manufacture ladies' and children's underwear, using 12s to 24s carded yarn. Two knitting and 10 sewing machines are being operated, but they are interested in all necessary machinery and supplies, as a large increase is contemplated. Robert D. Pearson is president, general manager, and buyer, and R. S. Cunningham is treasurer.

Pennsylvania, Centrehouse. Harry Body has started a small knitting plant on half hose. Ten of the latest improved machines built by the Boss Knitting Machine Works, Reading, Pa., have been installed.

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**Enlargements and Improvements.**

*Connecticut, Bristol. The additions to be built for N. L. Birge & Sons' Co. as noted will be started at once, but are not expected to be used for manufacturing before early in 1910.

Delaware, Wilmington. It is reported that the Delaware Hosiery Manufacturing Co., 15th and Walnut Sts., manufacturers of women's seamless and children's and infants' cotton hosiery on 395 knitters, 119 ribbers and 30 loopers, have recently placed a contract for machinery for the fitting up of a new and complete dye house in which to dye their own goods. A new building will be erected in which the machinery will be installed when received. The production of this plant is sold through Berry & Smith, N. Y.

*Massachusetts, Stoughton. Charles Stretton & Sons Co. has been incorporated with capital stock of $75,000. Thomas Stretton will be president, treasurer and buyer. This refers to the incorporation of the business of Charles Stretton & Sons, whose plant was burned last January. The new plant is now finished and manufacturing was resumed July 1.

*Massachusetts, Taunton. It is stated that new machinery will be installed by the Taunton Knitting Co. in about two weeks.

*Massachusetts, Wakefield. The new mill under construction for the Harvard Knitting Mills, Winship, Boit & Co., proprietors, will be used in part for dyeing and bleaching. Work on the new building, which is to be 3 stories high, 139 by 67 ft., is progressing rapidly. Work has also been started on the new power house, which will be 60 ft. square, and will double the power capacity of the mills.

*Michigan, Saginaw. Construction work will be started in about four weeks on the recently noted new building for the Clare Knitting Mills, and it is expected the plant will be moved here from Clare, Mich., about January 1. As stated previously, the present capacity will be doubled. The machinery will be driven by electric power.

New Jersey, Riverside. The Riverside Hosiery Mills, Christian Dick, proprietor, are to be enlarged.

New York, Cohoes. The Anchor Knitting Mills are running four sets of woolen machinery, and are putting in 300 new spindles. They are also starting up three sets in the old mill, which has not been in operation for a number of years. They are making yarns for the market, and have plenty of orders ahead to keep the machinery in operation for a long time. A new Foster 100-end coner was recently installed.

*New York, Elmira. The Ironwear Hosiery Co., recently noted, takes over the plant started some time ago by Mr. Chas. Heime. They expect to increase the output within the coming year to 500 pairs of half hose per day, making a specialty of goods that retail two for 25 cents, 25 cents straight, and a high grade to retail at about 50 cents per pair, in black and brown.

New York, Johnstown. The directors of the Johnstown Knitting Mill Co. are considering a proposition to build an addition. More orders are on hand now than at any time since the company was formed. Men's and children's underwear is manufactured.

New York, Little Falls. A new 5-story brick building to be used as a warehouse will be built for Robert McKinnon & Co., underwear manufacturers. Also a steel water tower and tank will be constructed.

New York, Fort Plain. A new engine is being installed in the Bailey Knitting Mill. The plant is closed for two weeks.

New York, Richfield Springs. The Waiontha Textile Co., recently incorporated as noted, to take over the Waiontha Knitting Co., will build a 3-story addition, 50 by 100 ft., also install a new 150-h. p. boiler and a filter plant.

New York, Utica. The Augusta Knitting Co. will increase its capital stock from $75,000 to $150,000. Recently a local piano factory was purchased to enlarge their plant. M. F. Robischon is treasurer and buyer.

*New York, Utica. About Sept. 1 the new 4-story mill, under construction for the Richelieu Knitting Co., will be completed, and when equipped the company will have a total of 100 knitting machines and 91 sewing machines. Charles A. Byington is president, George A. Frisbie, treasurer, and W. J. McQuade, superintendent and buyer.

Ohio, Piqua. The Superior Underwear Co. are removing their office to a building on the opposite side of the street from the factory, as they

contemplate having new buildings erected, construction work on which will be started immediately.

Pennsylvania, Bridgeport. A new dye house is being installed in the Kaufman Knitting Mills. Contract for equipment has been awarded.

*Pennsylvania, Easton. The enlargement of the spinning plant of Charles Chipman's Sons consists of two more floors, giving 25,000 sq. ft. additional floor space, which will be equipped with spinning and twisting machinery. Both the knitting and spinning departments are very busy.

*Pennsylvania, Hamburg. S. D. Bausher, proprietor of the Gotham Underwear Mills, has placed an order to equip his dyeing and bleaching plant with the Dyeing & Finishing Machine Works of Reading.

*Pennsylvania, Nazareth. Construction work was started July 15 on the addition to the Nazareth Waist Co., and the contract calls for the completion of the building about October 1. The mill is operated by steam power. Fifty knitting and 200 sewing machines are operated on waists and union suits. G. E. Schneebeli is president, treasurer and buyer. K. A. Werle is superintendent.

Pennsylvania, Philadelphia. Lazowick Bros., who have been operating the Atlantic Hosiery Mills at 515-17 Lombard St., have recently purchased the 5-story brick building, 115 by 23 1/2 ft., at 239 South Third St., into which they have removed and are remodeling for manufacturing purposes. The first floor will contain their office and salesroom, the back part of the building will be fitted up with machinery for dyeing. The third and fourth floors will be used for knitting, the machines for which will be brought North from a plant in the South which they recently purchased. The second floor will be used for finishing purposes and the fifth floor will contain their embroidering department. New machinery will be added in all departments in order that the plant will be up to date in every particular. They are manufacturers of men's seamless and women's cotton half hose and report that they have enough business on hand to keep them running to their full capacity for some time to come.

Pennsylvania, Philadelphia. The International Silk Knitting Co., now in the Bromley Mills, Jasper and York Sts., where they are manufacturing full fashioned hosiery in silk, have in contemplation the erection of a mill into which they will remove the plant.

Pennsylvania, Philadelphia. John E. Pike, manufacturer of high grade sweaters, sweater coats and athletic knit goods, who has been located in the Bromley Mills, Jasper and York Sts., is removing his plant to Howard and Norris Sts., where larger quarters have been secured.

Pennsylvania, Philadelphia. The Chemnitz Manufacturing Co., Armat St., Germantown, manufacturers of women's and misses' seamless hosiery on 100 knitters with R. M. Hampton as superintendent, are very busy in all departments. They have recently put in a new boardless singer built by the Philadelphia Drying Machine Co.

*Pennsylvania, Pittston. The 1-story addition under construction for the Alpine Knitting Co. will be used for bleaching, instead of dyeing, as stated in earlier reports. They are enlarging and improving their bleaching and drying facilities.

*Pennsylvania, Shillington. Twenty new knitting machines will be installed in the addition under construction for the Shillington Hosiery Mills. This enlargement will be completed about September 1. M. H. Fritz is proprietor.

Pennsylvania, Temple. Twenty new knitting machines will be installed in the addition under construction for the Maidencreek Hosiery Co., making a total of 85 knitting and 4 sewing machines. Claude L. Seidel is agent and buyer.

*Rhode Island, Providence. The new mill to be erected by George E. Boyden & Son will be 6 stories high, 50 by 160 ft., instead of the dimensions originally given, and is to be equipped with the full-fashioned machinery now operated by the British Hosiery Co. at Thornton. Their idea is to do away with the Thornton plant, carrying on all the business in Providence as soon as practicable.

*South Carolina, Walhalla. As reported, William A. Hetrick & Co. have consolidated with the Oconee Knitting Co. of this place, and are shipping their machinery south. R. T. Jaynes, Walhalla, is president; W. A. Hetrick, vice president and general manager; and Charles Hetrick, secretary and treasurer.

Wisconsin, Appleton. Manufacturing has been started in the plant of the Fox River Valley Knitting Co., formerly of Menasha, Wis. They are making seamless half hose and lumbermen's socks and mittens on about 80 knitting machines, and 16 sewing machines, operating the plant by steam power. Joseph Eggers is president; D. Nottage is treasurer and buyer, and J. Steinborg is superintendent. They buy woolen and worsted yarns in various numbers.

Wisconsin, Marinette. A new mill will be built in the spring of 1910 for the Marinette Knitting Mills, as they wish to bring the business done at the Swartz Knitting Mills, Milford, Ill., operated by them, to Marinette, and also to provide better quarters for the branch plant, now being equipped in the Mission Point Block.

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**Mills Starting Up.**

New York, Johnstown. The Diana Knitting Co., which has been closed for some time, has resumed manufacturing with a full force of operatives.

North Carolina, Goldsboro. The Goldsboro Knitting Mills have been sold to the Durham Hosiery Mills of Durham, and will be operated by the latter company as a branch plant when the purchase has been confirmed by the Court.

# New Machinery and Processes.

**This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to textile manufacturers. It is not a list of patents, but of improvements coming on the market. The idea being to present to our readers a systematic monthly record of new machinery etc., of interest to textile mill m n.**
**We invite machine builders and others to send us such information for this department.**

**Cold Water Shrinking Machines.** Schuchardt & Schuette, 90 West St., New York, are placing on the market a machine for shrinking cloth by the cold water process, and which is the invention of F. I. Burgher. A description appears in another part of this issue.

**Shuttle Threader.** The Belisle Thread Co., 112 Front St., Worcester, Mass., are placing on the market an improved shuttle threader which is described in another part of this issue.

**Mercerizing Machine.** A. W. Bulhmann, 487 Broadway, New York, is the sole American agent for a Swiss mercerizing machine which is described in another part of this issue.

**Dyeing Machine.** The B. Cohnen Machine Works, Grevenbroich, Germany. An improved dyeing machine designed for coloring heavy woolen goods and securing a thorough penetration by the dye liquor.

**A Yarn Reel.** J. Schweiter, Horgen, Switzerland. An improved yarn swift designed to facilitate the unwinding of the thread from the skein.

**Knitting Frame.** Arundel & Co., Sovereign Works, Stockport, England. An improved single thread winding frame for winding yarn on cheeses.

**Bobbin Stripping Machine.** Dronsfield Bros., Ltd., Oldham, England. An apparatus for stripping waste yarn from bobbins. It is attached to a bench and the bobbin is inserted in the machine, and by a turn of a crank the yarn is stripped.

**Calender.** J. P. Bemberg, Ritterhausen, Germany. A calendering machine of improved construction.

**Loom Spindle Oiler.** Thomas Matthews, Pendleton, Manchester, England. An automatic lubricator for loom spindles which, it is claimed, is capable of very careful adjustment, supplying just the amount of oil needed to keep the spindle properly oiled.

**Waste Opener.** John Hetherington & Sons, Manchester, England. A machine for opening cotton yarn waste which, it is stated, is giving good results in Lancashire mills.

**Hosiery Press.** S. Pegg & Sons, Leicester, England. A steam press for hosiery which has been designed to give a large production without the necessity of using extremely high pressure. The number of plates have been increased so that the stockings are left under pressure longer and the desired finish is obtained without the risk of over pressing.

**Slasher.** Carl Prueffer, Greiz, Germany. An improved slasher which, it is stated, is capable of a large production of perfect work owing to the improved drying facilities and construction of the machine.

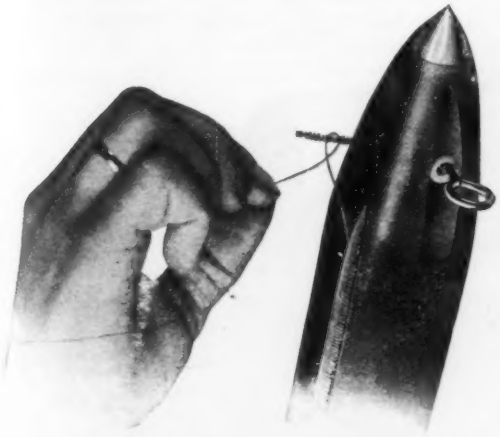
**Warping Machine.** Grossenhainer-Webstuhl-und-Maschinen Fabrik, Grossenhain, Germany. An improved sectional warping frame. The reel has no section pins, the yarn being wound by the cone system.

**Cloth Shear.** Arnold Emmeluth, Landeshut, Germany. An improved cutting mechanism for cloth shears, the spiral blades being concave. Brushes are set between these blades. The object of the new cutter is to prevent flocks and knot holes.

**Pattern Loom.** Oberholzer & Busch, Zurich, Switzerland. A pattern loom 8 inches wide and equipped with an 8 to 16 harness dobby motion for the weaving of trial samples by the designer. It is provided with one or two beams and costs about $55.

## THE BELISLE LOOM SHUTTLE THREADER.

A shuttle threader, the invention of J. N. Levasseur-Belisle of Manchester, N. H., and which is shown in the accompanying illustrations, is to be manufactured and



THE BELISE SHUTTLE THREADER.

marketed by the Belisle Threader Co., 112 Front St., Worcester, Mass.

The threader consists of a small coiled

THE BELISLE SHUTTLE THREADER.

wire, around which the filling is wound with a turn of the hand. The wire is then drawn through the shuttle eye, and with it comes the thread. The engagement between the filling thread and the threader is very slight, and as a result the thread becomes disengaged from the threader without further effort on the part of the operative. The tip of the threader is curved slightly for use with straight eye shuttles. In some cases a specially curved shuttle eye has been used in connection with the threader to facilitate the threading operation. The threaders are made of piano wire and in different sizes to suit the grades of work. It is claimed that the threader saves time and material. It obviates the objectionable sucking of the thread through the shuttle eye by the weaver. The danger involved in this offensive habit of sucking the thread through the shuttle eye is the subject of an interesting letter in this issue and which serves to emphasize the importance of using a shuttle threader. Further information regarding the Belisle device can be obtained upon application to the manufacturers.

INSERT Cuts and New Machinery

## AN IMPROVED "TIE."

The Reliable Tie Company of Chadwicks, New York, have adopted an improvement on their bundle-tying device.

This "Tie" is of metal, very simple in construction, and merely hooking the cord into

AN IMPROVED BUNDLE "TIE."

the device insures a securely tied bundle no matter how roughly handled. The tighter the cord is drawn the more securely is the bundle fastened. The bundle can be handled by the loose end of the cord without in any way endangering the security of the fastening.

The untying is as simple as the tying as it is only necessary to grasp the "Tie" by the back and it instantly loosens itself.

Owing to its simplicity of operation and its tenacity of hold it is exceptionally adapted to factories and mills where bundles of goods or raw materials are sent from one department to another.

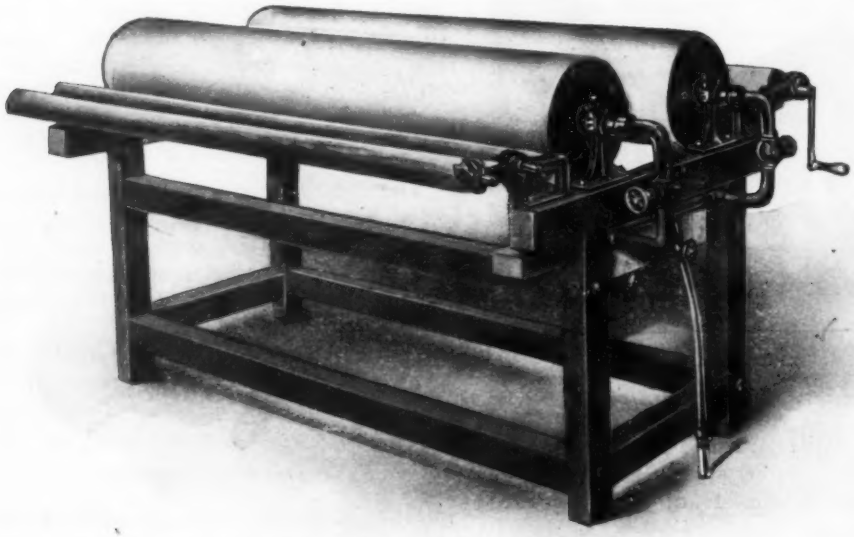
One great advantage of this "Tie" is the saving in cord, as with this device the same cord can be used many times, and yarn, underwear, cloth, gloves, brooms, clothing, etc., can all be securely fastened with it. The "Tie" can be made very cheaply in almost any desired size and will save any firm time and money.

## CLOTH SPONGING AND SHRINKING MACHINES.

The Hebdon steam sponging machine and the Burgher cold water shrinking apparatus, shown in the accompanying illustrations, are sold by Schuchardt & Schuette, 90 West St., New York. The Hebdon double cylinder machine has long been in extensive use in this country. It treats the cloth in the open width and gives a uniform sponging throughout the piece, removing the center crease. The cloth is rolled lightly around the cylinders and the steaming process requires a very short time, so that the machine is capable of a large production. After the cloth is wound on the cold roller it is folded in the open width or doubled ready for the cutting table as desired.

It is claimed that the machine allows only dry steam to come in contact with the material, each cylinder having several hundred small brass tubes which prevent any water from reaching the cloth. The steam is distributed uniformly throughout the cylinder so that the pressure is uniform on all parts of the cloth.

The Burgher machine is used for the cold water process of shrinking. It is the invention of a practical sponger and refinisher. The apparatus consists of a cold water tank equipped with rollers on which the cloth is wound with a moistening sheet. There is also a copper-faced steam drying table of which the length is adapted to suit the production desired. After being wound on the roller with the moistening sheet, the cloth is left for a few minutes until it has absorbed the desired amount of moisture. It is then unwound, the cloth being then rolled on an empty roller and dried on the drying table, while the moistening sheet is rolled back on the other roller over the tank.



THE HEBDON STEAM SPONGING, SHRINKING AND FINISHING MACHINE.

The Hebdon and Burgher machines are used to advantage in combination, the process being explained by one of the leading New York clothing manufacturers as follows: "We operate one of the most improved cold water shrinking and sponging plants to be found in the country, patented by F. I. Burgher. In cold water shrinking (commonly called London shrinking) every inch of the fabric to be treated is rolled in

wet blankets and left on the roller until the piece of cloth is thoroughly saturated; then after taking the material out of the wet blanket it is allowed to stand from one to three hours, thus allowing the moisture in the cloth to be thoroughly absorbed, after which it is passed over a steam-heated copper table until dry.

"By this process a maximum shrinkage is obtained which in a majority of cases will average fully 10 per cent. After being thoroughly dried and measured, the cloth is re-examined and every flaw and imperfection marked. The goods are always examined before shrinking, but owing to the severe test we put the fabric through in shrinking a great many damages which are imperceptible before treatment will become plainly visible, such imperfections being covered by the heavy artificial mill finish which must be removed before we can use the goods.

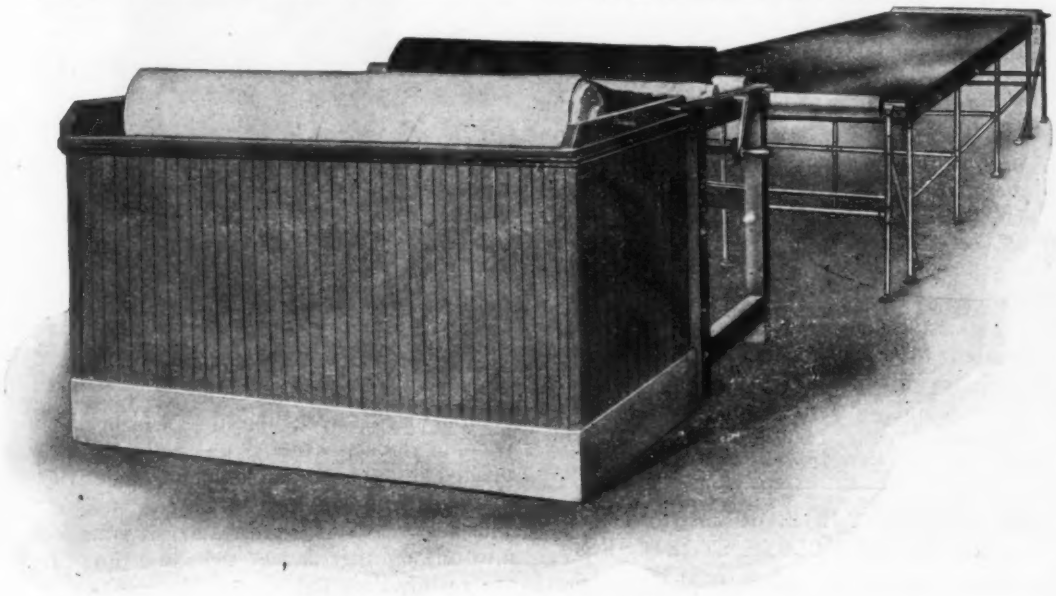
"The cloth is then refinished on the improved Hebdon machine, being sponged first on one cylinder and then transferred to another, each cylinder containing over a thousand small brass tubes, which prevent any water from reaching the cloth. By this method a permanent, a desirable and lasting finish is obtained. Both ends of the piece are uniformly refinished."

The following testimonials refer to the Hebdon sponging and refinishing machine:

Passaic, N. J., June 3, 1909.

Gentlemen: In reply to your inquiry of May 28th, we beg to say that we have used the Hebdon sponging machine for several years and are very much satisfied with the machine and the finish of the goods turned out by this machine.

Yours truly,
Botany Worsted Mills.



THE BURGHER COLD WATER SHRINKING APPARATUS.

Boston, June 11, 1909.

Gentlemen: In reply to yours of the 28th ult., we would state that we are using your machine and find it very satisfactory.

Yours very truly,
Jordan Marsh Co.

Mayfield, Ky., June 4, 1909.

Gentlemen: Replying to your favor of recent date, we beg to say that the Hebdon sponging and refinishing machine we purchased from you several years ago has given us splendid service and is still doing so. We take pleasure in recommending the machine as it has given satisfaction in every way.

Yours very truly,
Old Woolen Mills.

Providence, R. I., June 2, 1909.

Gentlemen: It is ten years this month since we bought the Hebdon sponging machine, and with the exception of recovering with felt once or at most twice a year, we have not spent a cent for repairs, and the work is as satisfactory today as it was in the beginning.

It has been in use continually, seldom a day passing without something for it to do, be it wool, silk or cotton, and we have had uniformly good work with all of them.

Callender, McAuslan & Troup Co.

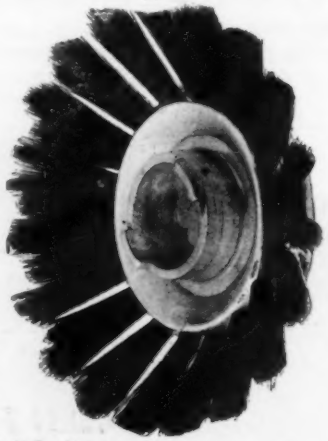
It is claimed that the Burgher machine will thoroughly wet, cold water shrink and dry full-sized pieces of goods in less than one hour. By this machine, therefore, material can be finished, ready for cutting in less than one day. Any desired finish can be put on the goods. The inventor recommends the finish produced by the improved Hebdon machine, which finish is used for more than two thousand manufacturers in the men's, women's and children's clothing trade.

Messrs. Schuchardt & Schuette will be pleased to show the Hebdon and Burgher machines in operation to anyone interested in them and will finish samples of goods to demonstrate the results that can be obtained.

## IMPROVEMENT IN BRUSH HOLDER FOR THE BRISTLE CLOTH STRETCHER.

When the bristle cloth stretcher was first put on the market by the American Finishing Machinery Co., 141 Milk St., Boston, the sectional brushes were made with a wooden core or disc in which the bristles were inserted in what was the best possible way known at the time.

It was found that the action of the brushes was radically different from the ordinary brushing motion, being more in the nature of a push exerted by the bristles, which resulted in a powerful end thrust against the holder. A careful study of the conditions was made and many different devices of holder were experimented with, the final result being a metal holder of a composition largely composed of aluminum. The outer rim of this brush holder is bored with holes of exactly the right size to receive the set of bristles and a small hole is drilled at the base of the larger hole, which is just large enough to admit the wire which holds the bristles in place, the other end being carried through the hole and fastened securely on the inner core. This insures a solid and substantial back for the bristles, which cannot become loose, cannot be pulled out or pushed in. The brush holder is indestructible and is not affected by heat or moisture. The design is such that the brush units lock into one another and at the same time they are readily detachable from the shaft.



AN IMPROVED BRUSH HOLDER FOR THE BRISTLE CLOTH SPREADER.

Another recent improvement to the cloth stretcher is the convenient arrangement for lifting up the brushes from the surface of the can and entirely out of the way of the operator if desired.

The experts of the company have made a special study of problems connected with cloth stretching. Their investigations into the subject of bristles is in itself a most interesting one and has developed a wide range of application of different styles of brushes, for different fabrics and according to the work to be done.

Delicate silks naturally do not require so stiff a bristle as a heavy duck. Figured and raised work, like bedspreads, require a particular kind of a bristle to get best results.

The company has found it desirable to

send their experts to consult with mill men on the class of work for which the stretcher is intended and believe this is the most satisfactory way for both parties.

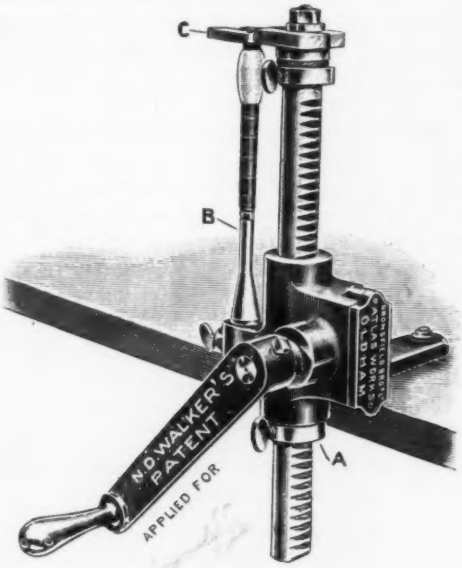
They invite any manufacturers who are interested in this new principle of cloth stretching, to correspond with them and will be glad to send specialists to confer with them and install a machine without incurring any obligation unless entirely satisfactory.

## WALKER'S PATENT BOBBIN STRIPPING APPARATUS.

The illustration shows a convenient apparatus which has been recently placed upon the English market, especially designed for stripping the waste (that is, the last few layers of the thread), from pirns, bobbins and roving tubes. Messrs. Dronsfield Bros., Ltd., Oldham, England, are the sole makers and we understand it may be ordered through any of the principal Boston textile machinery importers. Although only recently placed on the English market, a number of repeat orders have followed trial machines. The use of this machine takes the place of cutting off the yarn with a knife and by removing the material without injury to the bobbin or tube, effects a saving which will be appreciated by spinners and manufacturers.

The principle involved in the apparatus is very simple, being merely that of a rack and pinion, with a stripping device, C, fixed to the upper part of the rack. The stripper is provided with movable jaws, which are closed inwards to follow the contour of the bobbin during the time the stripping is taking place. When commencing operations, the machine is adjusted to take in the size of bobbin or pirn. This is done by placing the tip of the bobbin into the cup-ended spindle, B, and the base into the stripper, C, which gives the length of stroke to be made by the rack during the operation. The stop-collar, A, is then brought up, and is secured in its place by the thumb-screw shown.

The setting completed, the work of striping proceeds at a rapid pace, by the operator placing the bobbins, one after the other, in position, closing the stripper with the finger and thumb of the left hand, and turning the handle with the right until the stroke is completed.




A BOBBIN STRIPPING APPARATUS.

The machine can be secured to a bench or table in any part of a mill. It is powerful, and may be worked vertically or horizontally, either right or left hand. Where greater power is required a machine may be constructed to be driven by a belt.

## AYER MILL POWER PLANT.

Textile industries, as a rule, have been slow in taking up modern labor and fuel saving devices for the boiler room. It is therefore interesting to note that the new Ayer Mill at Lawrence, Mass., which is to be the largest single textile mill in the world, and is now in process of erection by the American Woolen Company, will have in its power plant Murphy Automatic Smokeless Furnaces.

There are several noteworthy features of this installation. The initial plant will consist of eight boilers of six hundred horse power each, attached to which will be the

largest single stoker units ever built by the Murphy Iron Works. Each of these furnaces will be capable of burning over 4,000 pounds of coal per hour and will weigh 55,000 pounds. Being automatic in all their functions, not only feeding and distributing the coal but also cleaning the fires and removing the ash and clinkers, these furnaces will cut the labor cost in two and effect a very large saving in the coal bills.

The new mill, when completed, will employ 3,500 hands and will be connected by subterranean passages and overhead bridges with the Wood Mill, where more than 5,000 persons find employment.

The Ayer Mill is intended for the manufacture of worsted yarns, and with the other two Lawrence mills of the American Woolen Company, will form a gigantic enterprise, giving work to nearly 15,000 men and women.

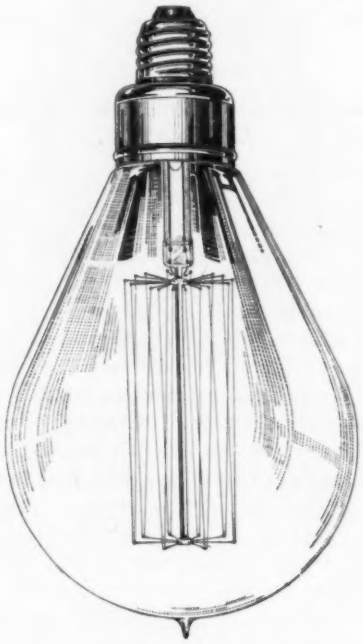
## THE NEW 200-250 VOLT TUNGSTEN LAMPS.

The advantages and economy of the Tungsten incandescent over the carbon filament lamp have been practically denied to most circuits operating at 200-250 volts, because the regular multiple Tungsten lamps were designed for the standard voltage of 100-125. On these larger voltage circuits—for example: 220-volts—in order to use Tungsten lamps at all it was necessary to operate two 110-volt lamps in series. Most users of the higher voltages preferred to wait for the advent of the Tungsten adapted to their voltage.

In answer to this considerable demand, the General Electric Company has extended its production of Tungsten lamps into voltages from 200-250. This gives to the users of higher voltages the opportunity for the adoption of the economical high-efficiency lamps for multiple service. The regular G. E. 200-260-volt carbon filament lamps ranged in efficiency from 3.8 w. p. c. to 3.1 w. p. c. The new Tungsten has the usual Tungsten efficiency of 1 1/4 w. p. c.

They possess all the excellent qualities of the regular G. E. 100-125-volt Tungsten lamps, including the same form of specially anchored filaments which make the G. E. 100-125-volt lamps so successful.

Thorough and ample tests of the new 200-250-volt Tungstens show exceptionally good results, the average life and performance of these lamps being fully up to that of the standard multiple lamps. They are a decided triumph for lamp manufacture and will prove very popular with all who require 200-250-volt lamps.



THE NEW TUNGSTEN LAMP.

The lamps are supplied in the following sizes and prices:

| | Plain. | Frosted. |
|---|---|---|
| 45 watt | $1.75 | $1.80 |
| 70 watt | 2.25 | 2.35 |
| 110 watt | 2.50 | 2.65 |
| 180 watt | 3.75 | 3.95 |

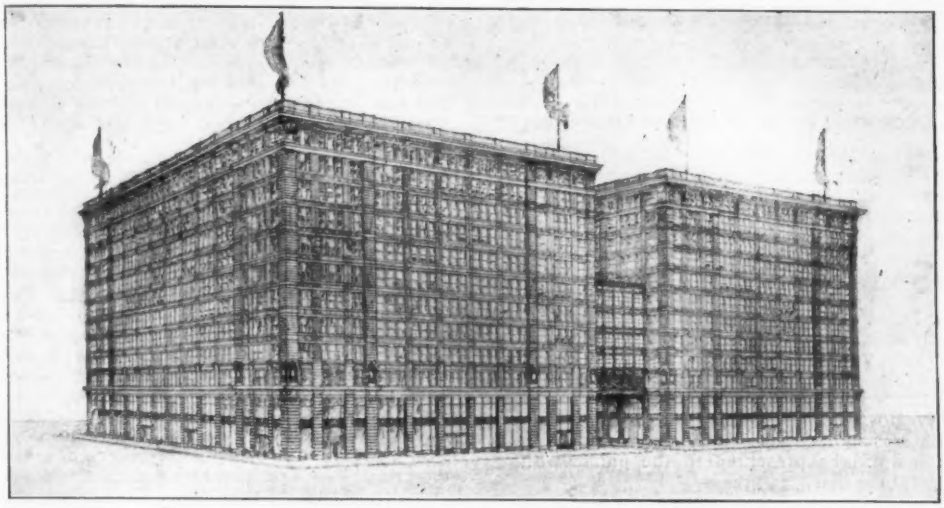
These prices are subject to the same discounts as given on the regular 100-volt Tungsten lamps and the same general terms of delivery.

## THE MERCHANTS' AND MANUFACTURERS' EXCHANGE.

A plan for a merchants' and manufacturers' exchange is involved in the building of two extensive buildings covering the city blocks from Forty-sixth to Forty-eighth Streets and Lexington Avenue to Depew Place, New York. The area is 110,000 square feet.

of the Exchange are in reality a part of the new Grand Central Station, the terminal for not only two railroad systems, but also for the New Jersey and Long Island tunnels and the Lexington Avenue tube.

In these buildings space will be leased to manufacturers in amounts to suit, for display and sales purposes. Here they will be housed with their various lines, combining



THE MERCHANTS AND MANUFACTURERS' EXCHANGE.

The general plan is patterned after that of the New York Furniture Exchange, which for twenty years has been the Eastern selling headquarters of more than 300 manufacturers in that line. Its success in attracting tens of thousands of dealers annually has demonstrated beyond question the advantage gained by centralization of sample salesrooms in a particular line. This organization has taken 500,000 square feet in the Merchants' and Manufacturers' Exchange buildings and will be a part of the centralized market created by the new Exchange.

It is expected that the new Exchange will greatly simplify the work of both buyer and seller in New York by bringing the representatives of many manufacturers under one roof where samples of their different lines can be examined by the buyers simply by passing from room to room. The buildings to make a centralized market place of great magnitude and importance.

Among the comforts and conveniences to be provided will be a well-appointed club, including reading, writing and private rooms, and a roof garden restaurant for the entertainment of visiting buyers; the three lower floors of one building will be devoted to an assembly hall for trade conventions requiring large area for the display of goods, machinery, etc., of each trade at the time of each convention.

The manufacturers of the enterprise inform us that manufacturers are rapidly contracting for space, over one-half of the 1,300,000 square feet having already been taken. They believe that the exchange can be of great advantage to different lines of industry by concentrating a large part of the New York trade under one roof where buyers and sellers can reach each other without inconvenience.

## ENGLISH AND GERMAN WOOLEN MILLS.

The textile operatives in what is known as the heavy woolen district of England, around Batley, have set an excellent example by sending to Germany a committee from their own number to investigate conditions in German mills that compete with their own. The full report of the investigation has not yet been completed, but a preliminary statement by a member of the committee has been published in the "Yorkshire Post," from which we take the following extracts:

### INVESTIGATIONS OF THE COMMITTEE.

The deputation asked for returns of wages, hours of labor, amount of unemployment, cost of living, rent, etc., and then invited the Amalgamated German Trade Unions to appoint a committee to scrutinize the figures supplied. The invitation was accepted, and the visitors, before they left Berlin, were assured that they had obtained a true statement of the position of the German textile work. The deputation were not bound by any hard and fast terms of reference. An itinerary was prepared for them, but they were told before leaving home that if they desired to visit any other places than those suggested they were free to do so. The mission was not organized in the interests of any political party, and the facts obtained will be presented to the public without any political bias.

### GERMANY BEHIND THE ENGLISH WOOLEN DISTRICT.

A practical man soon makes the discovery that Germany is still behind the heavy woolen district in the manufacture of cheap cloths, made wholly or partly from shoddy. The greatest progress is noticeable in the worsted mills, where some very fine ranges of cloth are being made.

I have no desire to enter into any controversial questions, but I should venture to say that Sir Swire Smith would be surprised if he saw the large quantities of German-made worsted yarns which are being used in the German cloth factories. It is perfectly true that in the Fatherland, English worsted yarns are bought freely; and so also is English textile machinery. But some of the most modern German mills visited by our deputation are equipped entirely with machinery made in Germany from the best English models. It is realized, I think, that there is nothing to equal English carding machinery, and it is regarded almost as a necessity for the low woolen trade, but the worsted manufacturer says he finds that German machines meet his needs, and he naturally gives the preference to the products of his own country.

What is true of machinery is equally true of worsted yarns. The Germans are making great quantities of yarns, which their cloth manufacturers are using in preference to English goods where they can do so.

### YORKSHIRE SHODDY MILLS SUPERIOR.

The impression we got in the mills was that the German is more likely to excel in the higher branches of the textile trade than in the lower classes. It is a common saying in Yorkshire that "any man who knows his business can make good yarn and good cloth from good stuff, but that it takes a genius to manufacture a decent cloth from cheap shoddy." The truth of this observation is soon realized when one gets into the German factories, and I should venture to say that the Bradford worsted yarn spinners have far more reason to fear German competition than have our English shoddy manufacturers. Several German mills have installed rag grinding machinery during the past few years, but one fails to find the proficiency that is attained in the best organized shoddy mills in Yorkshire.

### ENGLISH HAVE ADVANTAGE OF EXPERIENCE.

It is necessary to bear in mind that the Germans have not the experience of the industry that is claimed by the English. Technical education and scientific organization are effecting great improvements, but the working people have not the hereditary skill and knowledge of our Yorkshire operatives, whose ancestors have been engaged in the work for generations past. This is one of our principal assets, and when one sees the hundreds of raw recruits who are engaged in the German factories, many of them changing their occupations once or twice a year, one wonders if Sir Swire Smith can possibly be right when he suggests that English manufacturers could double their production "if they could have labor at continental rates, and work their factories continental hours." If Sir Swire means that English manufacturers could double their output with German laborers, wages, and hours I don't think he will find a single member of our deputation prepared to agree with him.

### GERMAN FACTORY CONDITIONS.

We have all been greatly surprised with the German factory conditions. We had a notion that the textile operative there works harder and longer than the English for far less money. The deputation have not yet tabulated the wage returns with which they were supplied, and I am not at liberty yet to make any detailed comparison with the wages paid in Yorkshire, but it is a fact that the German textile operatives are receiving fully 25 per cent. more money now than they were 20 or 30 years ago, while the workers in the heavy woolen district, the weavers especially, are earning less now than they were a quarter of a century ago, and are having to pay far more for food and fuel.

### GERMAN FACTORY LIFE LESS STRENUOUS.

Our observations led to the conclusion that the factory life of the German is far less strenuous than that of the Batley operative, and that the increased output of the latter is barely compensated by any wages he may receive in excess of his

German comrade. The German worker is far better cared for than the Englishman, and the operative in receipt of a pound a week pays little more in income tax, municipal taxes, and sick, accident, invalidity, and old age insurance than the heavy woolen workman pays in local rates.

The benefits of compulsory insurance are immensely appreciated by the German laborers. A sick or injured worker receives half his or her average earnings for 26 weeks, and if the incapacitation extends beyond six months an invalidity pension is given. Whether the disablement is long or short the pension is forthcoming, irrespective of age, and the minimum amount of the invalidity allowance is £5 16s. a year, while the maximum amount (which is increasing each year) is £13 2s. 4d. The minimum old age pension given at 70 is £5 10s., and the present maximum £11 10s.

### LITTLE UNEMPLOYMENT AND DESTITUTION.

We found little or no unemployment, and no destitution in the textile districts, in spite of the general trade depression that has existed this year in Germany as elsewhere. Manufacturers have their conventions for the regulation of prices and output, and steady employment is one result. There is little overtime worked at present, and it is generally expected that next year overtime will be prohibited by the state. At the same time a ten hours day for women, with Saturday afternoon holiday, will be legalized. Long hours are still worked in some districts, but we did not meet a single operative whose work exceeds 62 1/2 hours.

### UNEMPLOYMENT IN ENGLAND.

There are more operatives and workmen out of employment in this district (Batley) than ever before, and the trade prospects are so discouraging that during the coming winter the probability is that the number will be very much increased. The future is very black indeed without sign of betterment.

At present in Leeds and Sheffield it is claimed that there are some 40,000 people—men, women and children—utterly destitute and dependent entirely on charity for their support. The different municipal and other committees on unemployment are almost overpowered by the urgent calls upon the funds at their disposal.

### DETERIORATION OF THE BRITISH NATION.

In looking at the army of the unemployed as you see it at present in these large English centres, one is struck with the vast number of young men contained therein, pinched and wan, with a wolfish and starved look, which shows the lack of sufficient sustenance, and which year by year deteriorates their manhood, both physical and moral, stamps them down into the mire where they permanently become only a unit of the great submerged class—submerged and deteriorating year by year in all that makes for citizenship, whether physically, morally or intellectually. It is a sad picture, but one which is brought to one's attention at almost every street corner, and in walking down to business in the morning one will be intercepted ofttimes by dozens of gaunt, dirty and ragged creatures, male and female, whose wolfish eyes show the dire pangs which are sapping their existence, as they mumble "a penny for the love of God to save us from starvation."

When the men are in such straits, what must be the untold misery and hardships of the wives and children, the home a cheerless hovel garnished and swept of everything upon which the pawnbroker will lend a shilling. Is it any wonder that intemperance is rife, all other enjoyment being denied? The school authorities give free meals to thousands of the little waifs who come to school without a morsel to eat, and who snatch and devour the dry bread, or whatever else is placed before them, more like animals than human beings. To be present at the giving of free meals to the poor children, is, to many, the saddest sight among all the sad scenes of woe resulting from unemployment, intemperance, starvation and distress.

### WHAT WILL BE THE RESULT?

What is going to be the end, who can tell? The men and women, through want of food are falling lower and still lower in the scale of humanity, and bringing up little starved, deformed, emaciated and dirty children to be sucked down to a still lower level in the maelstrom of human woe. These men are not physically able to do a day's work, there is no use of offering them work. How then are the units of this vast army, yearly becoming greater, to be lifted, strengthened and helped up to regain the position they have lost, and to become again strong, able-bodied working men and women, the backbone of the country?

Those who are most interested in the movement for the amelioration of this class are almost in despair because nothing can really be done unless they are taken away from their present surroundings and placed in institutions erected for the purpose in the country, where they can be fed, trained and built up, at least physically, so as to be able to do a day's work. Unless some such scheme is devolved, this class is of no use here, and utterly unfitted as desirable emigrants to any other land. The country who receives as emigrants this class, unless after expert selection and careful probation is only for at least the term of one generation, undertaking untold expense, and much disappointment.

This is far from saying that all the members of the unemployed class are idle, useless and vicious, there are great numbers of men good and true among its ranks, who, for no fault of their own, are forced to march under its banner; and, who under happier surroundings, would make useful citizens.

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According to statisticians the annual consumption of woolens by civilized people amounts to $1,275,000,000, while the annual consumption of cotton amounts to $1,162,500,000.

# Dyeing, Bleaching, Printing, Etc.

## THE COMMERCIAL VALUATION OF THE STAPLE HYDROSULPHITES.

*BY WILLIAM C. THUDIUM.*
Winner of the Textile World Record Gold Medal, at the Philadelphia Textile School, 1909.

(Continued from July.)

These aldehyde compounds were discovered almost simultaneously by several chemists, which is not strange, considering the number of chemists who were at work on the subject. Priority is claimed by H. Schmid, but that is a matter of small importance. Hyraldite A and Hydrosulphite N F both belong to this class of compounds. The fact that discharges on wool dyeings frequently left a small residue of the dyestuff, which on subsequent atmospheric oxidation produced tinged white effects, led to the addition of zinc oxide to the formaldehyde-hydro-sulphite discharge. The reason for this addition was to have the pigment cover up the defective color; but better results have been achieved with lithopone, which is also a pigment used with Hydrosulphite N F X.

The precipitation process with sodium chloride has already been mentioned, but in 1900, the Badische Company patented a process for making stable hydrosulphite by precipitation with caustic alkalies, with or without glycerin. The resultant product was Rougalite B and was fairly stable to atmospheric influences.

The formaldehyde-hydrosulphite compounds are used only in dyeing for stripping purposes, but Hydrosulphite O and Hydrosulphite Conc. powder are largely used in vat dyeing, especially with synthetic indigo. This prevents the formation of any sediment and thereby causes a saving of dyestuff. In both compounds the active principle is free sodium hydrosulphite, but the former contains alkali while the latter does not.

The formaldehyde compounds alone find use in cotton printing, particularly with indigo, sulphur and Ice colors. They are printed with a strongly alkaline paste. They offer an advantage over glucose printing in that the cloth needs no preparing before printing, inasmuch as the print color contains the reducing agent and also that much less care is required in steaming both as to duration and dryness of steam.

Hydrosulphite N F consists of a molecular mixture of formaldehyde-hydrosulphite and formaldehyde bisulphite ($NaHSO_2\ CH_2O + 2H_2O + NaHSO_3\ CH_2O + 2H_2O$) and contains about 44 per cent. $NaHSO_2\ CH_2O + 2H_2O$. It is obtained by the action of formaldehyde on sodium hydrosulphite, white, solid bodies of fine crystalline structure resulting. Hydrosulphite N F is apt to liquefy in moist air, but if properly protected from dampness and excessive heat it will keep for months. It melts at 122° F. on the water-bath without losing its reducing properties, and only becomes efficient in the gaseous state, that is, at the boil.

Hydrosulphite N F W contains zinc white in addition to Hydrosulphite N F. It is used as a discharge for "raised" goods, the addition of zinc white preventing the easily soluble discharge from sinking into the cloth, and the zinc white also improves the white. Hydrosulphite N F X is similar to Hydrosulphite N F W, but contains lithofone instead of zinc oxide. It resists acids better than N F W and produces better white.

Hydrosulphite N F Conc. is a new compound of formaldehyde hydrosulphite and contains 88 per cent. $NaHSO_2\ CH_2O + 2H_2O$. It has twice the discharging effect of Hydrosulphite N F and its special advantages are stability and adaptability for very concentrated white and colored discharges.

One of the later preparations is that of Meister, Lucius & Bruning, who prepare a dry and very stable compound by making a 13 per cent. hydrosulphite solution in the ordinary way, adding some acetone, caustic soda and ammonium hydrate, and then evaporating to dryness in a vacuum. This form, known as Hydrosulphite C, is rather more stable than the older N F and W. It

discharges in the cold a solution of indigo sulphonate rather slowly, but more quickly when hot. This fact would indicate a chemical combination between the acetone and the hydrosulphite, which is unaffected in the cold, but which is decomposed on heating. This is also true with the aldehyde preparations, but the extra stability of the acetone over the aldehyde preparation is rather an advantage in many cases and in consequence is to be preferred.

It is known that the production of permanent variegated discharge effects on a ground color by means of the commercial hydrosulphite preparations, such as Hydrosulphite N F, Rougalite C and Hyraldite A, is attended with considerable difficulty. Such effects have been obtained practically only by the Jeanmaire process and also Zundel's process, which consist of adding such materials as aniline or phenol to the discharge color. According to a recent patent of the Society of Chemical Industry in Basle a hydrosulphite preparation, directly applicable to all discharge purposes, can be obtained by causing anhydro-formal-dehydeaniline and formaldehyde to act on a concentrated aqueous solution of sodium hydrosulphite in rapid succession. By this action the hydrosulphite is decomposed with the formation of sodium phenylamina-methyl-sulphite and sodium formaldehydesulphoxylate. By evaporating the solution a colorless, glassy mass is left stable in the air and consisting of the above mentioned products of the reaction. It is claimed that better, purer and more complete variegated effects are obtained from discharges by it, and furthermore, the permanence of the product itself and the discharge mixtures prepared with it is claimed to be superior to others.

There is a German process for stripping the color from dyed rags, which has been patented in this country. Alkali salts of formaldehyde sulphoxylic acid, Rougalite C, either alone or with formaldehyde bisulphite, possess very slight reducing properties in the cold, but are especially strong reducing agents when hot. Hence their use in removing the color from dyed goods, particularly from dyed rags for shoddy. The alkali salts of formaldehyde sulphoxylic acid are extremely sensitive to acids and on warming an acidified solution of such a salt decomposition occurs and sulphur is generally precipitated on the fiber. This decomposition also causes loss in reducing power, but the solution must be acid or the alkali will affect the goods. Instead of alkali, salts of formaldehyde sulphoxylic acid, the slightly soluble basic zinc salt may be used. Owing to its slight solubility in neutral solutions it exercises very little reducing power even at the boil, but on the addition of acid an energetic reduction of the coloring matter takes place.

The Badische Company recommend the use of stable hydrosulphites for bleaching bast, straw, cocoanut fiber, horse-hair and wool, and also for linen and tussah silk. At present, however, the cost is prohibitive for such uses.

The stable hydrosulphites may be estimated by chemical means, that is, since they are such strong reducing agents they can be titrated with various chemical agents such as iodine, permanganate or bichromate solutions. However the use of iodine is recommended as it does not oxidize the aldehyde group as the others do. The stable hydrosulphites contain the hydrosulphite, the bisulphite and the aldehyde group, all of which will reduce potassium permanganate, so the problem of estimation by chemical means is by no means a simple matter. Again these solutions of the hydrosulphites, when made up, are very liable to vary in strength. Furthermore the solutions cannot be titrated with iodine in the cold, but must needs be titrated at a boiling temperature. This fact is shown by making titrations of two or more samples cold and then comparing the results so obtained with the results from a practical stripping test. The discrepancy due to titrating cold will be readily seen.

There are various determinations which might be performed on a stable hydrosulphite, some of which are:

1. Titration with an oxidizing agent.
2. Determination of zinc content.

3. Moisture determination — over sulphuric acid.

4. Determination of sulphur—calculated to hydrosulphite.

5. Determination of the aldehyde group.

6. Determination of sulphur dioxide as such.

In view of the fact that the hydrosulphites are wanted for stripping and discharging purposes mainly, probably the best indication of their relative values is to be obtained by practical stripping or discharging tests. Again the presence of moisture in a sample of hydrosulphite would tend to lessen its strength. Hence the writer claims that the best method for the valuation of such compounds consists of practical working tests of the various samples under examination. By such a method the efficiency of the samples can be readily determined and the superiority of one sample may be readily seen. Then comparing the prices with the efficiency of each sample a good valuation may be obtained.

The writer performed a series of practical stripping tests from which is obtained some idea of what stable hydrosulphites will best reduce or strip certain dyestuffs of representative classes. The following dyestuffs were used:

3% Alizarine Red Paste.....on wool
3% Malachite Green.....on cotton
4% Diamine Fast Red F.....on cotton
4% Chicago Blue 6 B.....on cotton
4% Azo Rubine.....on wool
4% Formyl Blue B.....on wool

These colors were then treated with 6 per cent. each of the following hydrosulphites:

1 Hydrosulphite Conc. Powder...B A S F
2 Hydrosulphite N F.....M L B
3 Hydrosulphite N F W.....M L B
4 Hydrosulphite M L B Conc. Powder, M L B
5 Blankit T.....B A S F
6 Rongalite C.....B A S F
7 Decroline.....B A S F
8 Hyraldite Z .....Cass

Treated with 6 per cent. of each of the above and 4 per cent. acetic acid, the skeins dyed with 3 per cent. Alizarine Red Paste were not stripped. The shades were altered slightly, but none were completely stripped. The sample which gave the best results, however, was Hydrosulphite N F.

Again with the skeins dyed with Malachite Green and treated with 6 per cent. of the hydrosulphites and 4 per cent. acetic acid there were no skeins completely stripped, but the best results were obtained with Decroline, Hydrosulphite N F W and Rongalite C.

Of the skeins of Diamine Fast Red F treated with 6 per cent. of the hydrosulphites and 4 per cent. acetic acid, five skeins were completely or nearly completely stripped. They were, in the order of their efficiency, Rongalite C, Hyraldite Z, Hydrosulphite N F, Hydrosulphite N F W and Decroline.

The skeins dyed with Chicago Blue 6 B and treated with 6 per cent. of the hydrosulphites and 4 per cent. acetic acid gave the following results in the order of their efficiency: Hydrosulphite N F, Hydrosulphite N F W, Decroline, Rongalite C and Hyraldite C. The foregoing were all stripped, but the latter two had a slight bluish tint.

With the skeins dyed with Azo Rubine and treated with 6 per cent. of the hydrosulphites and 4 per cent. acetic acid, there were five skeins stripped, namely by: Decroline Hydrosulphite N F W, Hydrosulphite N F, Hyraldite Z and Rongalite C.

The skeins, dyed with Formyl Blue B and treated with hydrosulphites and acetic acid as in the previous experiments, showed five stripped samples, thus: Hydrosulphite N F W, Rongalite C, Hyraldite Z, Hydrosulphite N F and Decroline. From these experiments we observe that one hydrosulphite works particularly well with one dyestuff or class of dyestuffs and not so well with others.

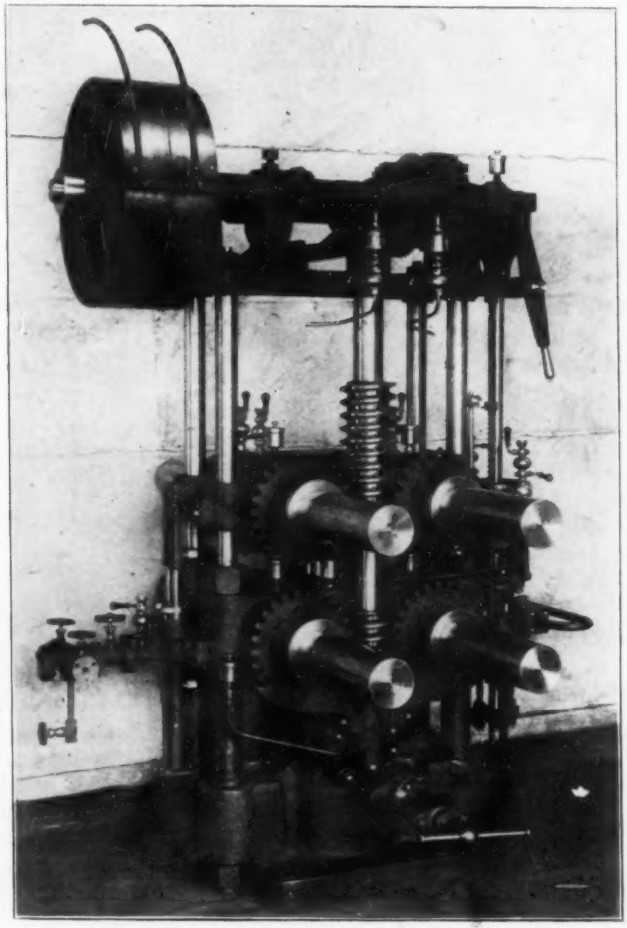
It is a very difficult proposition to decide upon the general superiority of any one hydrosulphite, although for specific purposes one might be superior to the others. Thus Hydrosulphite M L B Conc. Powder and Hydrosulphite Conc. Powder B A S F do not strip dyed colors at all, but are used in

vat setting with indigo and the indanthrenes, etc.

In most cases, however, the dyer or printer will have to decide which hydrosulphite is best for him to use, inasmuch as he alone knows what colors he uses, and also, that different colors are variously affected by the one hydrosulphite, and one color is variously affected by different hydrosulphites. as was previously stated, it is best for each dyer or printer to determine for himself which will be most advantageous for him to employ for any particular purpose.

## LUSTERING MACHINE FOR MERCERIZED COTTONS.

The accompanying illustration shows a lustering machine to increase the luster of



A LUSTERING MACHINE FOR NERCERIZED COTTONS.

For general use, however, Rongalite C, Hydrosulphite N F, Decroline and Hyraldite Z are preferable for stripping and discharging purposes, while for vat setting Hydrosulphite Conc. Powder and Hydrosulphite M L B Conc. Powder are to be preferred, but mercerized cotton and to impart a soft, silk-like handle and appearance to the yarn. After mercerizing, the yarn is bleached or dyed, saturated with the required liquor and sent into the drying room, where the moisture is reduced to 20 per cent. and the yarn

is placed on the lustering machine. It is steamed first and then lustered without steam. The hanks are placed on two pairs of rollers and stretched. The rollers are heated and rotating in order to produce a uniform effect on the yarn. The preliminary impregnation of the yarn is of the highest importance in order to obtain a silk-like handle, and varies according to the quality, nature and origin of the yarn as well as according to the dyestuffs that have been used.

The lustering machine consists of two pairs of heatable rollers placed on both sides of the machine and enclosed in a steam-chest. In the illustration the steam-chest is not visible, having been removed in order to illustrate the working mechanism. The machine is provided with a hydraulic pump with high and low pressure. The distance between the two rollers corresponding to the length of the hanks can be fixed so that an overtension of the yarn is practically impossible. After the hanks are placed on the rollers, the latter expand slowly and gradually to the fixed point, revolving continually. After the time required for lustering, the rollers return to their original position in order that the yarn may be removed easily. The double-acting hydraulic pump brings the rollers to the required distance, keeps them stationary during the lustering and then automatically releases them.

Only one attendant required for the machine and an over-stretching is impossible. Thus speckiness and a loss of elasticity, which result from overtension, are avoided. The production of the machine is 500 pounds per day with one attendant.

The machine is solidly built and is already in successful operation in the largest mercerizing plants in England and on the Continent.

It is built by the Swiss Textile Industry Co. of Basel and introduced in this country by their American agent, A. W. Buhlmann, 487 Broadway, New York.

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The imports of merchandise into India during the year 1906 amounted to $360,000,585 of which $100,806,868 was for cotton piece goods and $11,226,725 for cotton yarn.

## SULPHUR BLACK ON HOSIERY.

One of the greatest difficulties which confronts the hosiery dyer is to produce a sulphur black with a rich bloomy shade and finish. Scholler Bros. Co., 3301 N. Amber St., Philadelphia, Pa., manufacture an article called Brilliantone, which, it is claimed, acts upon the dye, developing it into a rich bloomy shade and puts back into the cotton the organic matters which the sulphide of soda has dissolved in dyeing. It is stated that goods after-treated with this article acquire by pressing the high lustrous finish and handle so much desired by the trade. The same results are obtained on colors and aniline (oxidized) black when after-treated with Brilliantone.

Samples and prices will be given upon application to the manufacturers.

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## Formula for Scouring.

*Editor Textile World Record:*

Kindly publish the best formula for scouring Oxford worsted knitting yarns.

Chester (1089).

In scouring Oxford yarns so as to retain the soft feel I have always found the following method to give good results: For the best quality yarns treat with olive oil saponified with caustic soda. This used with ammoniated soda gives a good scour. For low quality yarns I have used a good cocoa oil saponified for the soaping process. This has a tendency to leave a smell of cocoa, but if the oil is not used too strong and is thoroughly washed out it will not be noticed.

The following is a steeping process which I have used to advantage on worsted goods: Dissolve 50 lbs. aqua ammonia in 80 gals. of water; then dissolve 25 lbs. of good soap in 25 gals. of water with 10 lbs. of borax. Mix the two liquors together. After steeping the goods in the liquor very little scouring will be necessary. Dulcimer.

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There are in the United States 1,732 cotton manufacturing establishments of which North Carolina has 251, Massachusetts 210, South Carolina 141, Georgia 138, Pennsylvania 124, and New York 112.

## THE DELAHUNTY AUTOMATIC RAW STOCK DYEING MACHINE.

The extensive use of vat dyes for use in connection with the circulating system of dyeing has made more pressing the need of an automatic circulating dyeing machine for raw stock. Among the dyes that are used in these machines are the sulphur colors, indanthrenes, ciba colors, algol and thio-indigoes. Among the requisites of a dyeing machine for the use of these colors are the following: A uniform compression of the stock preventing exposure of the material to the air during the dyeing process; the ability to heat the liquor without direct steam pressure; and a steady circulation of the liquor. In addition the machine should be capable of being loaded and unloaded rapidly and as far as possible automatic in operation.

It is these conditions which the Delahunty Dyeing Machine Co., Pittston, Pa., believe they have fulfilled in their new raw stock dyeing machine. Fig. 1 shows this machine loaded with stock and as it appears when in operation. The interior removable plates supporting the raw stock are lifted and lowered by the gearing shown in the illustration and which in turn is controlled by suitable levers.

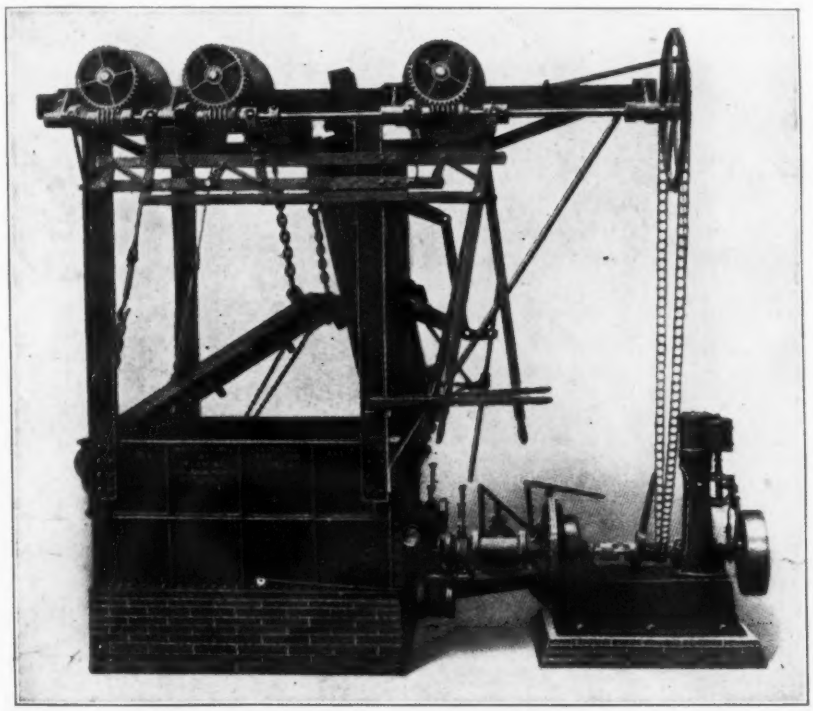

FIG. 1. SHOWING NEW DELAHUNTY DYEING MACHINE WHEN IN OPERATION.

Fig. 2 shows the machine when the stock is being lifted from the dye liquor. The supporting plate is in a slanting position so as to permit the stock to slide from the machine to the floor. Fig. 3 is a front view showing the lifting and discharge plates. The machine is loaded and unloaded in a very short time, tests having shown that the batch can be lifted from the vat in three minutes, while the operation of unloading and loading the machine requires about six minutes.

The liquor is forced by a pump through the stock and discharged through a number of nozzles in such a way that it travels in a circular direction at the bottom of the vat, ensuring perfect distribution of the dye before the liquor is forced upward through the material. The lower plate has about 3,500 5/8-inch perforations, and rests about five inches above the bottom of the tank. The upper plate has the same number of perforations and is pressed down on the stock. This upper plate is provided with a grooved offset which fits in a groove in the top of the tank, preventing any escape of liquor while the machine is in operation.

The liquor is heated by steam coils in a separate reservoir which is open to the air, preventing the possibility of an explosion from the steam pressure. After the stock is colored the pump is used to circulate the water through the material. The water passes through the stock but once and then runs to waste, thus removing all loose dyestuffs and chemicals and ensuring a thorough rinsing of the material. Owing to their long experience in the building of machinery for dyeing textile materials, the Delahunty Dyeing Machine Co. are especially well fitted for the construction of this new raw stock circulating dyeing machine. They are confident that it embodies all the latest improvements and would be pleased to give anyone interested a demonstration of the machine in operation. Alexander & Garsed, Charlotte, N. C., are their agents for the southern states. Among the mills in which the new machine is in successful operation are the following:

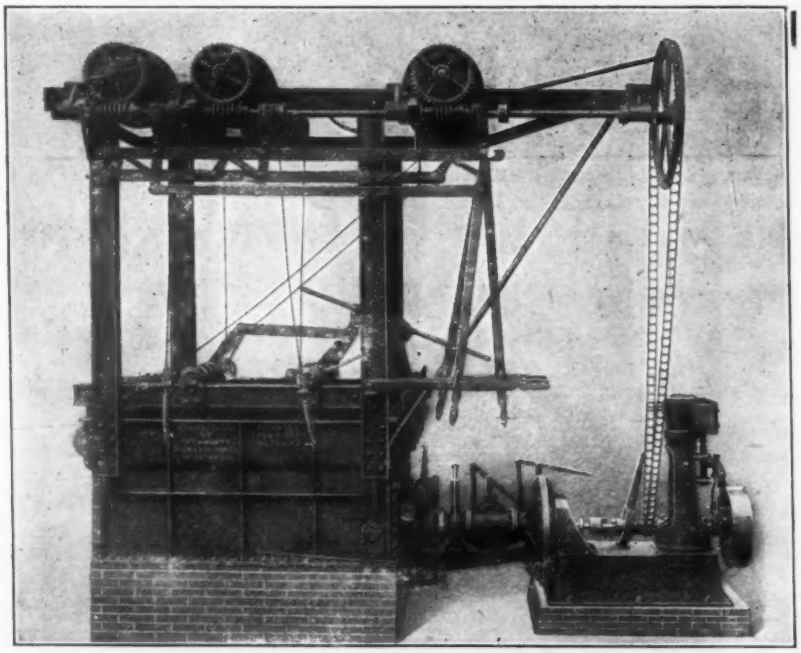

FIG. 2. SHOWING MACHINE BRINGING UP RAW STOCK.

The Sibley Mfg. Co., Augusta, Ga.; The Dacotah Cotton Mills, Lexington, N. C.; The Newnan Cotton Mills, Newnan, Ga.; The Virginia Cotton Mills, Swepsonville, N. C.; The Dan River Cotton Mills, Danville,

Va.; The Durham Cotton Mfg. Co., East Durham, N. C.; The Holt-Morgan Co., Fayettville, N. C.; The Aurora Cotton Mills, Burlington, N. C.; The Erwin Cotton Mills,

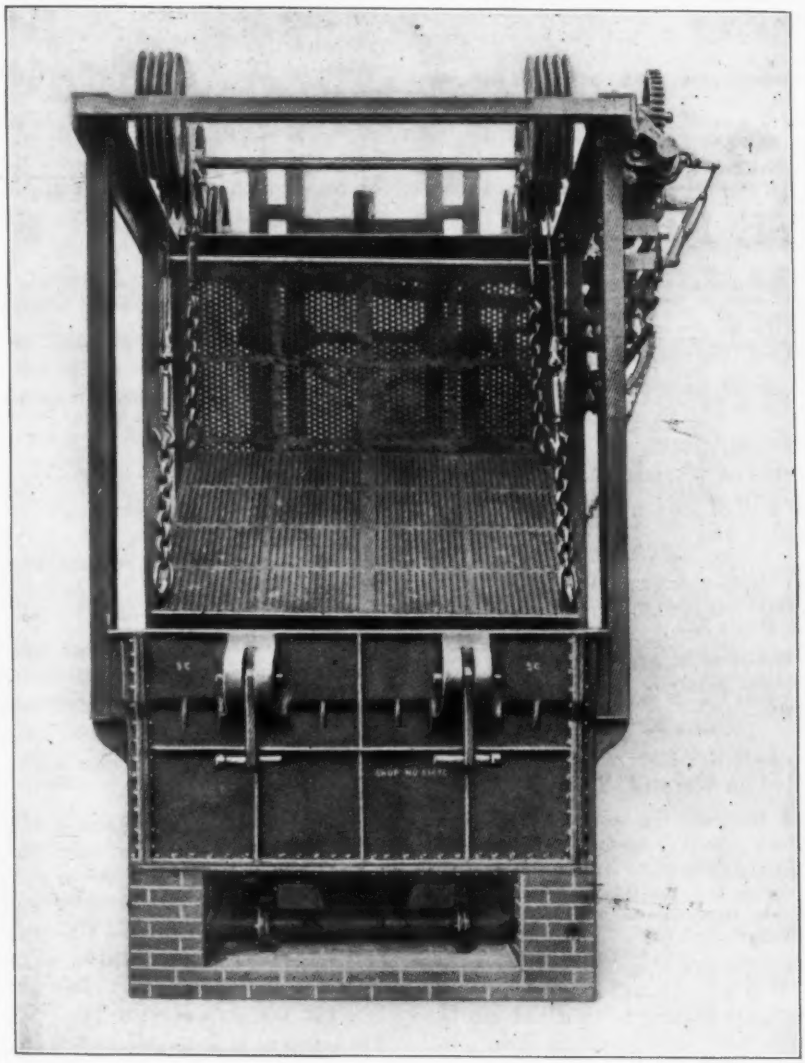

FIG. 3. SHOWING FRONT AND INTERIOR, LIFTING AND DISCHARGE PLATES.

West Durham, N. C.; The Kosciusko Cotton Mills, Kosciusko, Miss.; The Randleman Mfg. Co., Randleman, N. C.; The Ossipee Cotton Mills, Elon College, N. C.

**Mica Flake Lubricant.**

The U. S. Mica Co., 240 LaSalle St., Chicago, manufacturers of Mica Flake Lubricant, report a largely increased demand during the first six months of this year from textile manufacturers who find this lubricant particularly desirable on account of its superior cleanliness. It is pure white mica, perfectly clean and is claimed even when mixed with oil does not blacken or discolor, and will not of itself damage or soil the finest fabric or material.

### Soluble Softening Oil.

Many softening oils cannot stand heat as they get sour easily in summer. With their Soluble Softening Oil, the Arabol Mfg. Co., 109 William St., New York, are confident they have overcome that difficulty and are producing an article of absolute uniformity all the year around. It is easy to handle and those who have used it once prefer it to tallow and other oils and greases. It gives a smooth finish to the warps. The threads treated with it divide well in the lease rods and the cylinders of the slasher remain perfectly clean. Being neutral it is most suitable for closely woven and strong goods, such as corduroys, velveteens, sateens, twills, umbrella cloths and cambrics.

# DYE RECIPES.

**The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.**

Recipe No. 113.

### Blue on Worsted Cloth.

Union Blue T W on 100 lbs. worsted cloth. Prepare the dye bath with

3½ lbs. Union Blue T W.
(Read Holliday & Sons, 11 Gold St., N. Y.)
30 lbs. Glauber's Salt.

Start cold and raise to a boil in one-half hour, allow it to simmer gently for a further half hour, then cool down.

Recipe No. 114.

### Red on Worsted Yarn.

Wool Red S B on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Wool Red S B.
(Geisenheimer & Co., 189 Front St., N. Y.)
4 lbs. Sulphuric Acid.
10 lbs. Glauber's Salt.

Enter at 140° F., dye at a boil for one hour. Wool Red S B is a particularly brilliant red and possesses very good fastness to light and will be found of value as a self color as well as in the production of compound shades.

Recipe No. 115.

### Blue on Worsted Yarn.

Alizarine Direct Blue B on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Alizarine Direct Blue B.
(H. A. Metz & Co., 122 Hudson St., N. Y.)
15 lbs. Glauber's Salt.
3 lbs. Acetic Acid.

Enter at 104° F., bring to a boil in 3/4 of an hour and continue the boiling for one hour, then add

3 lbs. Acetic Acid,

or

2 lbs. Sulphuric Acid

to exhaust the color.

Alizarine Direct Blue B possesses very good fastness to light, alkali, perspiration and steaming, and is well adapted to all branches of wool dyeing.

Recipe No. 116.

### Green on Cotton Yarn.

Diamine Nitrazol Green G F on 100 lbs. cotton yarn. Prepare the dye bath with

4 lbs. Diamine Nitrazol Green G F.
(Cassella Color Co., 182 Front St., N. Y.)
1 lb. Soda Ash.
20 lbs. Glauber's Salt.

Enter at 180° F. and dye at a boil for one hour. Then couple with Paranitraniline in a bath made up with

2½ lbs. Paranitraniline.
7 lbs. Hydrochloric Acid, 36° Tw.

are boiled with

1½ gals. Water

until complete solution takes place, then the solution is poured slowly into

8½ gals. Cold Water

(or enough to make up to 10 gals.), and constantly stirred so that the yellow crystalline precipitate that forms will be as finely divided as possible. Then add

1 lb. 6 ozs. Sodium Nitrite

dissolved in

1 gal. Cold Water

as quickly as possible, stirring thoroughly. Allow the bath to stand 15 minutes, when the diazotization will be complete. Just before using, the excess of hydrochloric acid should be neutralized by adding

5½ lbs. Sodium Acetate

dissolved in

1 gal. Water.

The coupling may be accomplished with Nitrazol C if desired.

Diamine Nitrazol Green G F possesses good fastness to light and washing.

Recipe No. 117.

### Bordeaux on Worsted Yarn.

Mono Chrome Bordeaux R on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Mono Chrome Bordeaux R.
(Kalle & Co., 530 Canal St., N. Y.)
2 lbs. Potassium Bichromate.
10 lbs. Acetate of Ammonia.

Dissolve the dyestuff and the bichromate separately in boiling water, then add these solutions together with the acetate of ammonia to the dye bath at 100° F. Enter the material, raise slowly to a boil in 3/4 of an hour, and then boil for 3/4 of an hour. Rinse in hot water.

Mono Chrome Bordeaux R will be found suitable for the dyeing of raw stock and yarn, and also for piece dyeing where the cloth contains no effect threads. It is characterized by its extreme fastness to light and its level dyeing properties.

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Recipe No. 118.

**Yellow on Worsted Yarn.**

Guinea Fast Yellow R on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Guinea Fast Yellow R.
(Berlin Aniline Works, 213 Water St., N. Y.)
4 lbs. Sulphuric Acid.
15 lbs. Glauber's Salt.

Enter at 120° F. and dye at a boil for one hour. Guinea Fast Yellow R possesses very good fastness to light and weather, penetrates well and is a very level dyeing color.

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Recipe No. 119.

**Blue on Worsted Yarn.**

Fast Chrome Blue G on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Fast Chrome Blue G.
(C. Bischoff & Co., 451 Washington St., N. Y.)
5 lbs. Acetic Acid.
20 lbs. Glauber's Salt.

Enter at 120° F., bring slowly to a boil, and dye at a boil for 1/2 hour, then add

2 lbs. Sulphuric Acid

and continue the boiling until the dye bath is exhausted. Then add

2½ lbs. Potassium Bichromate

and continue the boiling 3/4 of an hour longer.

Fast Chrome Blue G will be found to possess excellent fastness to fulling and light.

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Recipe No. 120.

**Red on Cotton Yarn.**

Indanthrene Claret B Paste on 100 lbs. cotton yarn. Prepare the dye bath with

15 lbs. Indanthrene Claret B Paste.
(Badische Co., 128 Duane St., N. Y.)

and the necessary amount of water, which should be kept as low as possible. Make the dyestuff into a paste with water at 120° F. Pass through a fine sieve or cloth into the dye bath. Stir well and add

12 lbs. Caustic Soda

previously dissolved in

6 lbs. Blanket T

dissolved in cold water. Stir the bath thoroughly, enter the yarn and work for one hour at a temperature of 140° F. Then wash in cold water containing

1 lb. Blanket T

per 100 lbs. material. Finally sour in a cold bath containing 3 lbs. sulphuric acid per 100 lbs. material.

Indanthrene Claret B Paste like other Indanthrene colors is characterized by its remarkable fastness.

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Recipe No. 121.

**Olive on Worsted Yarn.**

Fast Chrome Olive X on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Fast Chrome Olive X.
(C. Bischoff & Co., 451 Washington St., N. Y.)
4 lbs. Sulphuric Acid.
15 lbs. Glauber's Salt.

Enter at 120° F., bring slowly to a boil and dye at a boil for one hour. Then add

3 lbs. Potassium Bichromate

and continue the boiling for 3/4 of an hour longer.

Fast Chrome Olive X, like most of the afterchromed colors, possesses very good fastness to light, washing and the other color-destroying agencies.

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Recipe No. 122.

**Blue on Worsted Yarn.**

Fast Acid Blue 2 R on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Fast Acid Blue 2 R.
(W. F. Sykes & Co., 85 Water St., N. Y.)
10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 140° F. and dye at a boil for one hour.

Fast Acid Blue 2 R gives a shade of blue noted for its brilliancy and depth. It stands scouring well and combines well with other acid colors.

Recipe No. 123.

### Yellow on Worsted Yarn.

Fast Light Yellow G on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Fast Light Yellow G.
(E. M. Thayer & Co., 411 Atlantic Ave., Boston.)
2 lbs. Sulphuric Acid.
10 lbs. Glauber's Salt.

Enter at 120° F., bring slowly to a boil and boil for one hour.

Fast Light Yellow G is a very soluble dyestuff which penetrates well and dyes evenly. Its fastness to rubbing, fulling, carbonizing and alkali is very good, and its fastness to light is excellent.

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Recipe No. 124.

### Blue on Worsted Yarn.

Salicine Blue B N on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Salicine Blue B N.
(Kalle & Co., 530 Canal St., N. Y.)
15 lbs. Glauber's Salt.
4 lbs. Acetic Acid.

Enter at 120° F., bring slowly to a boil and dve at a boil for 3/4 of an hour. Then add

2 lbs. Sulphuric Acid

and continue the boiling until the bath is exhausted. Then add

2½ lbs. Potassium Bichromate

and continue the boiling for 3/4 of an hour longer.

Salicine Blue B N possesses excellent fastness to light, washing and fulling.

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Recipe No. 125.

### Turquoise Blue on Worsted Yarn.

Brilliant Acid Blue F F on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Brilliant Acid Blue F F.
(Farbenfabriken Co., 66 Lafayette St., N. Y.)
15 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 140° F. and dye at a boil for one hour.

Brilliant Acid Blue F F gives a blue of remarkable brilliancy and clearness, with good fastness to stoving and alkalies.

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Recipe No. 126.

### Brown on Cotton Yarn.

Paranil Brown 2 B on 100 lbs. cotton yarn. Prepare the dye bath with

4 lbs. Paranil Brown 2 B.
(Berlin Aniline Works, 213 Water St., N. Y.)
40 lbs. Glauber's Salt Crystals.
2 lbs. Soda Ash.

Enter at 180° F. and dye at a temperature of 200° F. for one hour. Rinse and then develop in a bath made up as follows:

Dissolve 1 lb. 6 ozs. Paranitraniline together with 3 1/4 lbs. 32° Tw., Muriatic Acid, and 1 quart of boiling water. When dissolved this should be made up to 3 gallons with water.

3/4 lbs. Sodium Nitrite is then dissolved in 1 quart of water, and this solution, together with the acid paranitraniline solution are made up to the necessary quantity for developing.

3 lbs. Sodium Acetate are then added to the bath, and the dyed yarn worked at ordinary temperature for 1/2 hour, then rinsed and dried.

Paranil Brown 2 B possesses good fastness to washing and most of the common color-destroying agencies.

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Recipe No. 127.

### Red on Cotton Yarn.

Diamine Brilliant Rubin S Pat. on 100 lbs. cotton yarn. Prepare the dye bath with

4 lbs. Diamine Brilliant Rubin S Pat.
(Cassella Color Co., 182 Front St., N. Y.)
½ lb. Soda Ash.
20 lbs. Common Salt.

Enter at 180° F. and dye at a boil for one hour.

Diamine Brilliant Rubin S Pat. possesses very good fastness to the common color-destroying agencies.

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Recipe No. 128.

### Blue on Worsted Yarn.

Fast Chrome Blue G on 100 lbs. chrome mordanted worsted yarn. First mordant the yarn in a bath made up with

2½ lbs. Potassium Bichromate,
2½ lbs. Lactic Acid,

entering the material at not over 120° F., bringing slowly to a boil and boiling for 1 1/2 hours. Then add the mordanted yarn in a bath containing

1 lb. Fast Chrome Blue G.
(C. Bischoff & Co., 451 Washington St., N. Y.)
1 lb. Acetic Acid.

Fast Chrome Blue G when dyed in this manner produces colors extremely fast to the ordinary color-destroying agencies.

# Mill News.

**Those interested in receiving early and more complete investigated information of projected new mills, enlargements, improvements, fires facts and gossip of the trade are referred to the Textile Advance News, issued weekly by the publishers of the Textile World Record, at $15.00 per year.**

## COTTON.

**New Mills.**

*Arkansas, Earle. N. B. Graves will form a corporation with not less than $50,000 capital to build and operate the proposed mill. Mr. Graves has not decided what the product will be, although it most likely will be cotton sheetings. He proposes to erect a mill with space for 10,000 spindles and 300 looms, although this number will not be installed at first. A steam power plant will be built.

*Georgia, Athens. The new cotton mill company organized by J. W. Ingle and J. T. Jordan will be known as the White City Mfg. Co. J. W. Ingle will be president and treasurer, and J. T. Jordan, secretary and general manager. Three thousand spindles and accompanying machinery will be installed for manufacturing soft-twist cotton yarns. The plant will be operated by steam power. While work has not been started on buildings at the present time, they plan to begin this work at once, and to be manufacturing in October. No contracts have been awarded.

*Massachusetts, Boston. It is stated that contract for the erection of the first unit of the Maverick Mills will be awarded next week, and that it is expected machinery will be running by December 1. Robert Burgess, manager of the Burgess Mills, Pawtucket, R. I., is associated with E. N. Foss in this enterprise, and will have charge of the mills.

*Massachusetts, New Bedford. A part of the new Nashawena Mills will be ready for manufacturing in October.

*Massachusetts, New Bedford. Contract for the construction of buildings for the new Holmes Mfg. Co. has been awarded. The buildings will cost $350,000. The main building is to be a spinning mill, 4 stories high and basement, 534 by 132 ft.

*Massachusetts, New Bedford. A charter has been granted Pierce Bros., Ltd., with capital stock of $700,000. Andrew G. Pierce is president; Edward T. Pierce, treasurer; and Albert R. Pierce, clerk. The object given is the manufacture and sale of textile fabrics. It is probable the new corporation refers to the new mill in which Andrew G. Pierce has been reported interested from time to time and which, it is stated, will manufacture tracing cloth for draftsmen.

*North Carolina, Laurinburg. Buildings for the Waverly Cotton Mill, which were begun in April, are nearing completion. The machinery will be delivered in August, and no delay in beginning manufacturing is anticipated. J. P. McRae is president and buyer. The company has capitol stock of $300,000.

*North Carolina, Lincolnton. It is expected that the Saxony Spinning Co. will begin manufacturing early in November. Combed Sea Island yarns, 2/40s to 2/80s, will be manufactured on initial equipment of 8,600 spindles. A steam power plant will be erected. The company has organized with Edgar Love, president and buyer, and James Lee Love, treasurer.

*North Carolina, Mocksville. Indications point to the establishment of a $75,000 cotton mill. This proposition has been agitated for years. Subscriptions are being solicited by a committee composed of T. J. Byerly, G. E. Horn, and C. L. Williams.

*North Carolina, Roanoke Rapids. Buildings to be erected for the new Patterson Mills Co., include a main building two stories high, 105 by 568 ft., which will be equipped with 22,000 spindles, 750 looms, dyeing and finishing machinery, etc., to be driven by electric power. A number of dwelling houses for operatives will also be built. Lockwood, Greene & Co., Boston, are preparing plans, which will be completed in about three weeks.

*North Carolina, Warrenton. Five thousand spindles will comprise the initial equipment of the Peck Mfg. Co. The product will be 2/20s warp yarns. Work will be started on buildings at an early date, and manufacturing will be started in January or February, 1910. The authorized capital stock is $500,000, $120,000 paid in. Thomas D. Peck is president; R. B. Boyd, treasurer; and H. J. Bradley, manager and superintendent. Mr. Peck was formerly of the firm of J. L. & T. D. Peck Mfg. Co., Pittsfield, Mass., having been president of that company since 1895, and before that date treasurer. Mr. Bradley was with Mr. Peck in Pittsfield for eleven years, for the past five years occupying the position of manager of their cotton mill.

*South Carolina, Abbeville. The proposed new cotton mill will have capital stock of $250,000. A 10,000 spindle mill will be built. The subscription list is said to be meeting with favor, and it seems probable that the company will be regularly organized within a short time. J. Allen Smith, president of the National Bank of Abbeville, and interested in several industrial concerns, will be president and treasurer.

*Virginia, Martinsville. The Martinsville Cotton Mills Co. has completed organization and purchased machinery which will include 18,000 spindles, 446 looms, etc., for the manufacture of fine sheetings. Lockwood, Greene & Co., Boston, are preparing plans. Z. T. McKinney is president; H. N. Dyer, secretary, and R. L. Walker, treasurer. The plant is expected to be ready for manufacturing before the end of the year.

**Enlargements and Improvements.**

Alabama, Eufaula. The 320 new Northrop looms ordered in April by the Cowikee Cotton Mills have been received, and are being installed.

Connecticut, North Grosvenordale. About 200 new looms are being put in the Grosvenordale Co.'s plant, and a foundation for new engine is being built.

Connecticut, Taftville. J. W. Bishop Co. of Worcester, Mass., have been awarded contract for the erection of a weave shed for the Ponemah Mills. The building will be of steel and concrete construction, 673 by 200 ft., 1 story high with basement.

*Georgia, La Grange. Contract for the construction of the addition to the Unity Cotton Mills, recently noted, has been awarded to John F. Grandy & Son. The new space will be used for weaving, and several new looms will be installed.

*Georgia, Douglasville. At the meeting of stockholders of the Lois Cotton Mills held July 1, it was decided to double the capacity of the mill, as recommended by the directors. A number of houses for operatives also will be constructed.

*Massachusetts, Fall River. The new building of the Davis Mills is practically completed, and machinery is being installed in every department. The engine will be ready for a trial operation in about two weeks.

Massachusetts, Fitchburg. An order for Nasmith combers and complementary machinery has been placed by the Grant Yarn Co.

*Massachusetts, Lawrence. The Pacific Mills are having cleared the land owned by them east of the Wood Worsted Mills, and a river wall will be built during the summer and fall by Contractor Locke. This site is to be used for a large print works, but work will not be started on the buildings to be erected until the spring of 1910.

Massachusetts, Lowell. Plans for a new weave shed for the Merrimack Mfg. Co. have been announced. The building will be 174 ft. long, and 154 ft. wide, 2 stories high with basement. The character of the product has not been made public, but the Merrimack Mfg. Co. is now operating the velveteen department of the Cocheco Mills at Dover, N. H., and is credited with a desire to consolidate this department with the main plant at Lowell.

*Massachusetts, Lowell. Construction work has been started on the new dye house for the Appleton Co.

*Massachusetts, Lowell. The Lowell Textile Co. will remove its entire plant to the Moore Mill in North Chelmsford. 180 looms are operated on towel and crashes of all descriptions of both linen and cotton. The capital stock is $35,000. Thomas O. Selfridge is president, and Harold Selfridge is treasurer, superintendent and buyer.

Massachusetts, New Bedford. It has been voted that the capital stock of the Nonquit Spinning Co. be increased to $2,400,000, and the additional shares be offered to stockholders in the proportion of one new share for every share of the present capital of $1,200,000 now outstanding. As noted recently, a new mill will be built.

Massachusetts, New Bedford. A large addition will be built on West French Ave. by the Kilburn Mill.

Massachusetts, New Bedford. At the annual meeting of the stockholders of the Gosnold Mills Co. a proposition will be submitted to increase the capital by $550,000 for the purpose of building an addition to the weaving mill, and increasing the working capital of the company. The proposed new weave room will give space for 1,300 looms.

Massachusetts, New Bedford. Two additions will be built to the Acushnet Mill Corp. One will be a 1-story brick addition, 79 by 233 ft., and the other will be an addition to the carding room, 27 by 75 ft.

Massachusetts, New Bedford. Contract has been awarded for an addition to the Hathaway Mfg. Co., which will be 28 by 152 ft., 1 story high, and will be used to increase the carding department.

Massachusetts, Waltham. At a meeting of stockholders of the Boston Mfg. Co., it was voted to increase the capital stock from $400,000 to $600,000. For some time improvements have been under way, and when completed 14,000 new spindles and 686 new looms will have been added. Arthur T. Lyman is president; Ronald T. Lyman, treasurer; William H. Rankin, agent; Lot W. Quealy, superintendent, and Arthur H. Paul, buyer. The product is sold through Lawrence & Co.

*Mexico, Guadalajara. A modern cotton mill to cost $500,000 will be built by the Compania Industrial de Guadalajara to replace the mill destroyed by fire in June. The burned property was insured for $300,000, and work on new buildings will be started as soon as the insurance is paid.

New Hampshire, Nashua. The Wonalancet Company, manufacturers of carded cotton for woolen mills, have bought recently six acres of land within a mile of Nashua Junction on the Boston & Maine R. R. tracks on which will be erected a main building 200 by 100 ft., storehouses 300 by 100 ft., heating plant and waste house. They expect to complete these buildings and to be in operation by November 1. They will materially add to their machinery equipment and probably increase their output to three times its present volume. Lockwood, Greene & Co., Boston, are the architects. The new plant will cost in the vicinity of $150,000. Lester F. Thurber of Nashua is the president of this company and Harry H. Blunt of Nashua, treasurer and manager.

New Hampshire, Nashua. A 1-story addition to be used as a weave room is to be erected to Mill 7 of the Nashua Mfg. Co. At the same time the foundation will be laid for a large mill at the east end of the plant, although construction work on this building will not be started for some time.

A number of changes are being discussed by the directors of this company.

New York, Pleasant Valley. A number of new looms will shortly be installed in the Pleasant Valley Cotton Mill, Garner & Co., 112 Worth St., New York, proprietors, as reported some time ago. Also an air-moistening system will be installed. Chambrays are manufactured on 88 looms.

*North Carolina, Albemarle. The Efird Mfg. Co. are arranging to begin the erection of their proposed new 2-story building at an early date. Details of this enlargement have been given.

*North Carolina, Albemarle. The Wiscassett Mills Co. have begun excavations for the foundation of the branch mill to be built this summer.

North Carolina, Cliffside. Contract has been awarded by the Cliffside Mills for seventy new looms. These will be set up within thirty days. Before November 1, 10,000 new spindles will be installed.

*North Carolina, Draper. Upon the completion of the small addition now under construction for the German-American Co., approximately 1,000 additional spindles will be added and several new looms.

*North Carolina, Hickory. Two hundred new looms will comprise the equipment of the new mill under construction for the Ivey Mill Co., to be operated on fine sateens, the same as the present product. For the present no additional spindles will be added. G. H. Geitner is president, A. A. Shuford, treasurer, and G. F. Ivey, superintendent and buyer. The mill is operated by steam power.

*North Carolina, Lumberton. Work on the addition to the National Cotton Mills, Inc., was begun June 21, and will be completed early in October. 5,520 new spindles will be installed for manufacturing 18s to 20s white and mixed yarns, on cones.

North Carolina, Sanford. The Sanford Cotton Mills are now being operated by electric power from the Carolina Power & Light Co.'s plant at Buckhorn Falls.

Pennsylvania, Philadelphia. The Colonial Manufacturing Co., which started up several months ago in the Pine Tree Silk Mills, Boudinot and Allegheny Ave., on shirtings, etc., have taken in another floor in which they are now installing new looms.

Pennsylvania, Philadelphia. The Niagara Thread Co., manufacturers of high grade sewing threads and mercerized cotton on cones, tubes and spools, at 236 Chestnut St., report that they are very busy operating their plant until 9 o'clock at night to fill orders. Business with them is so brisk that they have been compelled to put in new tubing and winding machinery, all of which are now in full operation. The plant is run by electricity.

*South Carolina, Arcadia. Contract for the erection of the additional building for the Arcadia Mills has been awarded to the J. F. Gallivan Building Co., Greenville, S. C. As reported some time ago 10,000 spindles and 250 looms for manufacturing wide convertible goods will be installed before January 1.

*South Carolina, Calhoun Falls. Ten thousand spindles and 250 looms comprise the new equipment to be installed in the Calhoun Mills. James P. Gossett is president and treasurer; E. M. Lander, secretary, assistant treasurer, and buyer; and W. Y. Harrison, superintendent.

*South Carolina, Central. About September 1 a new mill will be built for the Isaqueena Mill, and upon its completion about 12,000 spindles, and 300 looms for manufacturing 39 1/2-inch print cloths will be installed, making the total equipment 25,000 ring spindles and 700 looms. No contracts have been awarded. R. G. Gaines is president and treasurer; C. J. Tarrant is superintendent; and R. Ramseur is secretary and buyer. The plant is operated by steam power.

South Carolina, Clifton. New boilers are to be installed in the power house of the Clinton Mfg. Co.

*South Carolina, Goldville. The Banna Mfg. Co., previously reported as increasing its capital stock from $50,000 to $125,000, will erect a building to be equipped with 4,000 spindles and 250 looms for manufacturing wide prints. As there are 6,000 spindles in the present plant all the yarns needed will be spun.

South Carolina, Inman. New machinery is being received by the Inman Mills. This will be installed in the addition recently completed. The new equipment comprises 13,600 spindles and 240 looms for manufacturing sheeting.

*South Carolina, Spartanburg. About June 15 the Arcadia Mills will begin work on their reported addition, and expect to have 10,000 spindles and 250 looms installed for manufacturing wide convertible goods by Jan. 1, 1910. The capital stock will be increased from $200,000 to $400,000. A. Ligon is president, treasurer and buyer. W. S. Moore is superintendent.

South Carolina, Union. The contract for the installation of 50 looms, 6 cards, and drawing machinery has been awarded by the Ottaray Mill.

*Tennessee, Nashville. Plans for the enlargement of the Warioto Cotton Mills have not assumed definite shape, and perhaps will not be completed for several weeks.

Texas, Denison. The capital stock of the Denison Cotton Mill Co. will be increased from $150,000 to $300,000. Since the first of the year a number of improvements have been made, and new machinery installed, but it is likely further enlargements are contemplated. Cotton duck is manufactured.

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**Mills Starting Up.**

*North Carolina, Greensboro. The sale of the plant of the Pomona Mfg. Co. to the Pomona Mills has been confirmed by the court, and organization has been effected by the new company with

J. E. Latham, president; W. C. Boren, vice-president, and G. O. Coble, treasurer. The new company has capital stock of $200,000, and a bond issue of $150,000.

## WOOLEN.

### New Mills.

*Maine, Kennebunk. The Kennebunk Mills have been incorporated with capital stock of $200,000 by George B. Goodall, president; Louis B. Goodall, treasurer, and William Bachelder, clerk; all of Sanford. This refers to the starting of the plant at Kennebunk, which will be controlled from the Goodall Worsted Co.'s office at Sanford.

*Massachusetts, Franklin. Charles T. Main, Boston, has completed plans for buildings for the Franklin Felt Co. These call for three buildings, 168 by 60 ft., 260 by 60 ft., both one story high; a 2-story structure, 50 by 65 ft.; also an engine house, 40 by 40 ft., and a boiler house, 46 by 50 ft.

Massachusetts, Montague. The Dyke Mill has been incorporated with capital stock of $5,000 by Edward H. Virgin of New York, Carl P. Rollins, and Charles F. Kimball to manufacture wool rugs and dye linen threads. They are fitting up the old Dyke Mill.

Pennsylvania, Philadelphia. A. Blumenthal, manager of the Kensington Hair Co., 2525 N. Bodine St., has leased the first floor of the building at Mascher St. and Lehigh Ave., in which he will install 10 82-inch looms for the manufacture of men's wear worsteds. The equipment for the plant has been ordered and it is expected will be set up and ready for operation the early part of August.

### Enlargements and Improvements.

Canada, Ontario. Forest. The Forest Woolen Mills, formerly located at Arkona, Ontario, have removed to this place, and are manufacturing blankets, flannels, stocking yarns, and hosiery on one set of cards, two sewing machines, and two looms. J. F. Dickinson is proprietor.

*Connecticut, Rockville. Contract for construction work on the new dye house to be built for the Hockanum Mills has been awarded Norcross Bros. Co. of Worcester, Mass. The buildings will cost about $80,000.

Maine, Warren. The new boilers installed in the George's River Mills have been connected, the plant shutting down for two days to allow of this work being done.

*Maine, Wilton. A. L. Holley of Livermore Falls has been awarded contract for the proposed addition to the Wilton Woolen Co.

*Massachusetts, Blackinton. The new weave shed, which has been under construction for some time for the Blackinton Co., has been completed. New looms will be installed immediately.

Massachusetts, Hudson. The Hudson Worsted Co. has been enjoined from discharging waste into the Assabet River, and will install a filter plant at once.

Massachusetts, Lawrence. The central power plant of the Arlington Mills is shortly to be enlarged, and excavating for the concrete foundation has been started. Eight new boilers will be installed.

Massachusetts, Lawrence. The Wood Worsted Mills have ordered 20 additional Noble combs.

*Massachusetts, Lowell. Contract for building the new dye house for the Bigelow Carpet Co. has been awarded to W. N. Pike & Sons, Lawrence, Mass. It is expected that work will begin immediately.

Massachusetts, North Chelmsford. Good progress is being made on the work of rebuilding the Brookside Worsted Mills, which were burned several months ago. When the work is completed George C. Moore will have a larger plant than ever. A part of the main building will be 4 stories high, and the rest 2 stories high.

*Massachusetts, Saxonville. An addition to the picker room, 17 by 46 ft., 1 story high, is being built for the Saxonville Mill, and a new set of cards and a new mule to manufacture an additional quantity of carpet yarns are being set up. It has been rumored that 20 new looms will shortly be added, but these are not provided for in the present enlargement. They will be installed, however, in the near future.

*Massachusetts, Watertown. Ten new Knowles intermediate looms have been ordered by the Bemis Mills, and will be set up as soon as delivered. As reported previously an enlargement is being made to the power plant.

New Jersey, Trenton. F. A. Straus & Co. have completed a wing 60 by 80 ft., 2 stories high, and will erect another addition of about the same dimensions to the opposite end of the building.

*New York, Albany. An increase in the capital stock of McCleary, Wallin & Crouse, Inc., from $1,000,000 to $2,000,000 was made to permit the company to make large extensions to their present plant. A new building will be erected on Forest Ave., north of the tapestry mill, which will be of brick construction, 50 by 80 ft., and 3 stories high.

New York, Candor. An addition will be built to the Candor Blanket Co. filling the space between the main building and the structure used as a finishing room and office. New equipment will be needed.

*Ohio, Cleveland. Construction work will be started within a few days on the previously noted new mill for the Cleveland Worsted Mills Co. The old building on the site to be occupied by the new structure is being torn down. Work will be started at an early date on the addition to the company's mills at Ravenna, O., which will be 4 stories high, 210 by 50 ft. About $80,000 is being expended on these improvements.

Pennsylvania, Chester. The new building erected for the Emmott Worsted Spinning Co., at 5th and Morton Sts., has been completed and the

machinery to be installed in it has been received and is now being set up ready for operation. They are manufacturers of worsted yarns, operating 3 cards, 3 combs and 2,000 spindles on the Bradford system. The new machinery just received has come from England and consists of cards and spinning frames which will enlarge their equipment and give them a larger output of yarn.

Pennsylvania, Philadelphia. The equipment of the new French worsted spinning plant, which I. C. Kerkeslager will operate in conjunction with the mill in which he operates 6 sets and 900 spindles on woolen carpet, rug and blanket yarns at Lexington Ave. and Wilde Sts., Manayunk, will consist of 1,800 spindles which will be run on worsted yarns up to 40s. The machinery has been ordered and when delivered will be installed in an adjoining mill which has been put in condition for its reception.

Pennsylvania, Philadelphia. A new 3-story addition will be erected by A. J. Cameron & Co., manufacturers of worsted yarns at Glenwood Ave. and Pacific Sts. The new mill will measure 268 by 64 ft. The company is not prepared at this time to state what the equipment of the new building will be.

*Pennsylvania, Philadelphia. The new building erected for the Andrews' Mills, Frankford, manufacturers of dress goods, to be used for piece dyeing and finishing purposes, is finished and the machinery is being installed as it comes in from the builders. The plant will be in operation within a short time.

Pennsylvania, Philadelphia. Thomas Crompton has placed a contract with a local builder for the erection of two additional floors to the building at the S. E. Cor. of Emerald and Willard Sts., at a cost of $7,500. When the operation is completed, which will be about August 1, the plant of Thomas Henry, Jr., manufacturers of carpet and upholstery yarns, with 17 sets and 3,000 mule spindles, at Madison and Willard Sts., will be removed to this address.

Pennsylvania, Philadelphia. The Delaine Mills, Inc., manufacturers of worsted goods at 5th and Columbia Ave., operating 60 broad looms, have removed their offices and warerooms to the building at the N. E. Cor. of 5th and Oxford Sts., one block from the factory. The leasing of this building was necessitated to enable them to obtain more room for manufacturing purposes.

Pennsylvania, Philadelphia. A large number of new looms recently purchased by the Hirst & Rogers Co., Kensington and Allegheny Aves., are now being installed by them. They are manufacturers of tapestry and velvet carpets and rugs, their present equipment consisting of 75 looms.

Rhode Island, Esmond. Plans are under consideration for an enlargement to the Esmond Mills.

*Rhode Island, Pawtucket. The proposed additions to the Lorraine Mfg. Co. include a new weave shed, 463 by 135 ft., a 4-story spinning mill, 240 by 108 ft., and a 5-story storehouse, also an addition to the power plant.

Rhode Island, Pawtucket. English drawing and spinning machinery has been installed by the Harrison Yarn & Dyeing Co. for manufacturing worsted yarns. Tops will be bought.

*Rhode Island, Peacedale. Two sets of worsted drawing, making 15 new frames, are being installed in the Peacedale Mfg. Co., taking the place of some of the old woolen cards, which are being thrown out. They are also adding 750 h. p. to their plant by means of a low pressure steam turbine, and it is their intention to electrify all the worsted and woolen spinning plants. Several new houses are being built for the additional operatives needed when these improvements are completed.

Rhode Island, Providence. An additional story is to be built on No. 5 Mill of the Atlantic Mills.

Rhode Island, Providence. Improvements have been made in the dye house of the Continental Worsted Co., and a new skein dyeing machine has been installed. This company took over the Blanding Mfg. Co.'s plant.

*Rhode Island, Providence. Permit has been issued to the Colored Worsted Mill to erect two 1-story buildings, 24 by 100 ft., and 38 by 99 ft. Contract for construction work has been awarded to the W. A. Chapman Co.

Rhode Island, Providence. Another enlargement is planned by the Elston Worsted Co. They propose to build a 3 or 4-story mill, 200 ft. long and 50 ft. wide. It is stated that the branch plant at Wallingford, Pa., which was the original plant of this company, will be removed to Providence on the completion of the new mill.

Rhode Island, Wakefield. A large coal pocket is being erected for the Wakefield Mfg. Co.

*Virginia, Winchester. Construction work has been started on the reported addition to the Virginia Woolen Co., which will be 3 stories high, 32 by 100 ft. The company has stated that the capacity of the plant will not be increased, the new space being provided for the present machinery equipment. The power will be electrically distributed.

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**Mills Starting Up.**

Massachusetts, Dalton. The Sawyer, Regan Co. has started manufacturing. This company has taken over the Dalton Woolen Co. property.

New Hampshire, South Wolfboro. The Wolfboro Woolen Mills, C. W. Springfield Co., proprietors, have started up on orders after a shutdown of several weeks.

*Ohio, Dresden. Recently we reported the incorporation of the Cleveland Woolen Mills Co. by Cleveland parties, including George E. Collings and Charles Taylor of Collings, Taylor Co. The new corporation has purchased the plant of the C. T. Marshall for $15,000, and will start the machinery this month on horse blankets, operating Muskingum Valley Woolen Mills Co. from trustee two sets of cards and 20 looms by steam power.

being installed in the old finishing works for the J. S. Boyd Co. It is planned to begin manufacturing about the first of September. They will manufacture corduroy.

*New Jersey, Hohokus. The Dale Brook Bleachery, which owns the old plant of the Brookdale Bleachery, has leased the property to the Hohokus Bleachery, which will operate the plant on khaki and specialties.

New York, Gouverneur. Plans are under way at the International Lace Co. to employ additional operatives and operate all the machinery. New lace machines have been received from the plant at Tarriffville, Conn., which was dismantled about a year ago.

## FACTS AND GOSSIP.

Alabama, Anniston. At the meeting of stockholders of the Anniston Yarn Mills the proposition to enlarge the plant was not acted upon favorably. As a result no increase will be made in the immediate future.

*Arkansas, Little Rock. A committee has been appointed to put the cotton mill proposition in shape in order that it may be laid before the community. The tentative plan is to build a mill of 15,000 to 20,000 spindles.

California, Oakland. The California Silk Mills have been incorporated with capital stock of $100,000 by William H. and J. W. Hibbard and L. W. Watts.

Connecticut, Bridgeport. A branch plant of the Henkel Lace Co. of Germany may be established here, as an option has been secured on a desirable site on Connecticut Ave.

Connecticut, East Lyme. It has been reported that the Niantic Mfg. Co. would purchase the building occupied by them. This is incorrect. The Niantic Mfg. Co. succeeded the Niantic Mills Co. and operates 8 sets of cards and 39 looms on woolen men's wear and dress goods. The capital stock is $75,000. D. R. Campbell is president, and James Bathgate, treasurer and buyer.

Connecticut, Killingly. The Chase Woolen Co. has been incorporated with capital stock of $50,000 to begin business with $15,000 paid in. Charles D. and Herbert Chace, Danielson, and R. B. Chase of Hartford, are the incorporators.

*Connecticut, Middletown. It is said that a new concern has practically perfected plans to take over the Merchants' Silk Co. and operate it. At present the property is controlled by the York Silk Mfg. Co.

Connecticut, Willimantic. The silk throwing business conducted by A. G. Turner has been incorporated under the name of the A. G. Turner Silk Co. There is no peculiar significance to the change, as Mr. Turner will still control the business.

*Connecticut, Willimantic. It is expected that by September 1 the new mill of the American Thread Co., known as No. 6 Mill, will be in full operation.

Connecticut, Windsor Locks. Arthur H. Bottum, general manager and principal owner of the Windsor Silk Co., has purchased the property occupied by the company from M. W. Hayden.

*Georgia, Americus. The Board of Trade claims to have secured the pledge of $30,000 toward the projected $100,000 cotton mill.

Georgia, Ellijay. W. M. Scott and Dr. Watking of Atlanta propose to develop a water power and build a hydro-electric plant at this place. They plan to transmit power to Rome, Ga., for the textile mills.

*Georgia, Hampton. The Hampton Cotton Mills deny the report that the capacity of their plant will be doubled.

*Georgia, Raymond. Plans for the proposed cotton mill have not been perfected, but satisfactory progress is being made. G. J. Thomas is interested.

Georgia, Vidalia. Stuart & Co., Savannah, Ga., propose to erect a $130,000 cotton mill at this place if the residents will subscribe $20,000.

Illinois, Elgin. It is reported that the Western Thread Co. of Chicago has decided to locate in Elgin.

Maine, Sanford. The Sanford Mills wish to deny the report which represented them as contemplating shutting down the plant for a part of the summer. The company states that there is absolutely no foundation for such a report, as the demand for the product of the mills is fully up to normal.

Maryland, Baltimore. F. A. Lazenby & Co., Bush and Wicomica Sts., builders of cotton machinery, report that they are very busy on their line of cop and butt winders

*Massachusetts, Holyoke. Agitation for the location of the Howard Ramie Fibre Co. in this city has been renewed. Since trying to interest Holyoke parties, the Howard Co. has been trying to locate in Springfield.

Massachusetts, Lawrence. It is very likely the United States Worsted Co. will erect a worsted yarn mill, but whether the new plant will be located in Lawrence, Lowell, or Providence, has not been decided. All the mills of this company

Massachusetts, Lawrence. An explosion in the basement of No. 4 Mill of the Everett Mills caused a shut down for several days of that department.

Massachusetts, New Bedford. A site on the Ashley Farm, nearly opposite the Kilburn Mills, which is very desirable for manufacturing has been purchased by parties who are said to contemplate the erection of a cotton mill. W. H. Langshaw, who is reported to be interested in the project, refuses either to confirm or deny the report. Reports state further that Mr. Langshaw will be president of the proposed company, and Clifton H. Bartlett, treasurer. Plans are said to be made for a 4-story spinning mill and a 3-story weaving mill.

# Personals.

S. M. Lambert, superintendent of the Garland Woolen Company, Staffordville, Conn., has severed his conection with that company.

P. T. Donahue has accepted the position as overseer of finishing at the Saranac Mills, American Woolen Company, Blackstone, Mass. He comes from Woonsocket, R. I., having recently been employed at the Greenville Woolen Company, Greenville, R. I.

Dennis W. Cady has been appointed overseer of weaving at the Meredith Linen Company, Meredith, N. H. He was formerly employed at the Pemberton Mills, Lawrence, Mass.

Wm. H. Cole has been appointed agent and manager, and James Sullivan, superintendent of the Jefferson Mfg. Company, Jefferson, Mass. Mr. Sullivan comes from Holden, Mass.

John O'Neal has been appointed superintendent of the Eagle Lake Mills, Jefferson, Mass.

Geo. Conway has accepted the position as overseer of carding at the Eagle Lake Mills, Jefferson, Mass.

Joseph Demars has accepted the position as overseer of weaving at the Eagle Lake Mills, Jefferson, Mass. He comes from Leominster, Mass.

Jos. Reynolds has been appointed overseer of finishing at the Eagle Lake Mills, Jefferson, Mass. He comes from Uxbridge, Mass.

Jerry Lecuyer has accepted the position as overseer of carding at the Pine Tree Worsted Company, Medway, Mass. He was formerly employed at the Esmond Mills, Esmond, R. I.

Geo. Templeton has accepted the position as overseer of finishing at the Stillwater Worsted Company, Greenville, R. I. He was formerly employed at Talcottville, Conn.

Frank T. Quigley has accepted the position as overseer of spinning at the Cheshire Mills, Harrisville, N. H. He comes from Wilton, N. H.

Wm. Barratt has accepted the position as overseer of winding at the Wm. Carter Company, Needham Heights, Mass. He comes from Pawtucket, R. I.

Webster M. Pike has been appointed overseer of dyeing at the Stillwater Worsted Company, Greenville, R. I. He comes from Norwalk, Conn.

Geo. H. Thomas has accepted a position as overseer of carding at the Middlesex Company, Lowell, Mass. He comes from the Great Falls Woolen Company, Somersworth, N. H.

A. L. Hilton has accepted the position as overseer of carding and spinning at the Abbott & Latimer Company, North Dexter, Me. He comes from Lowell, Mass.

Frederick H. Birkby has accepted the position as overseer of dyeing at the Bradford Mills, Germantown, Pa. He comes from Lowell, Mass.

W. H. Johnson has accepted the position as engineer and master mechanic at the Jackson Mill, Iva, S. C.

L. H. Covery, bookkeeper at the Mooresville Cotton Mills, Mooresville, N. C., for the past two years, has resigned.

Edwin M. Goldsmith, for many years Director and Secretary of the Friedberger-Aaron Mfg. Company, on July 1 entered into active association with the business of the corporation. It is expected that he will materially contribute to the maintenance of the enviable position occupied by the company in the trade and the advancement of its productiveness. Mr. Goldsmith has been a successful manufacturer of men's clothing and has been in this relation for a long period of years associated with the firm of N. Snellenburg & Co.

F. F. Scheffel, formerly boss finisher at the Botany Worsted Mills, Passaic, N. J., has accepted a similar position with the Andrews Company, Frankford, Phila., Pa.

C. M. Powell has accepted the position as overseer of carding at the Imperial Mills, Eatonton, Ga.

R. J. Smith has accepted the position as overseer of weaving and slashing at the Henrietta, N. C., Mill No. 1.

Clarence B. Shipley has accepted the position as overseer of weaving at the Saxon Mills, Spartanburg, S. C.

T. Press Lee has accepted the position as superintendent of the Lenoir Cotton Mill, Lenoir, N. C.

M. P. Pitts, general manager of the John E. Smith Mfg. Company, Thomson, Ga., has severed his connection with that company.

Geo. H. Thomas has accepted the position as overseer of carding at the Middlesex Mills, Lowell, Mass. He was formerly employed at the Great Falls Woolen Company, Somersworth, N. H.

G. Uhlig, overseer of the dyeing at the Garfield Worsted Mills, Passaic, N. J., has accepted a similar position with the Andrews Company, Frankford, Phila., Pa.

Obadiah Butler, formerly superintendent of the Taber Mill, New Bedford, Mass., has severed his connection with that company to accept a similar position with the Bristol Mfg. Company, same city.

Chester Page has accepted a position as overseer of the dressing department at the Thistle Worsted Company, Danielson, Conn.

M. G. Morrill, superintendent of the Ballou Mills, Ballouville, Conn., has resigned. He was presented with a handsome gold watch by the employes in token of their esteem. Mr. McConnell of Danielson succeeds him.

J. L. Burton, superintendent of the Bristol Mfg

Company, New Bedford, Mass., has severed his connection with that company. He is to accept the superintendency of the New Nashewena Mill.

John P. Campbell, for many years agent of the New York Mills, New York Mills, N. Y., has severed his connection with that company, and will give his whole time to the management of the Walcott & Campbell Spinning Company of the same place He is succeeded by Timothy Mooney.

William I. Woodward, formerly agent of the Shetucket Company, Greenville, Conn., is to take charge of the two cotton factories at Shelby, N. C., the plants being those of the Shelby and Belmont Cotton Companies, to begin work July 19.

J. C. Tipton has accepted the position as overseer of carding at the Ninety-six Cotton Mill, Ninety-Six, S. C., succeeding J. T. Lokey, who resigned.

Claude Braswell is to take charge of spinning at the Siluria Cotton Mills, Siluria, Ala. He formerly held a similar position at the Alabama Cotton Mills, Spigner Station, Ala.

L. W. Evans has accepted the position as overseer of carding at the No. 5 Marlboro Mill, Bennettsville, S. C.

W. S. Griffin has accepted the position as overseer of spinning at the Ida Yarn Mill, Laurel Hill, N. C. He comes from Monroe.

James Smith has succeeded J. C. Cole as overseer of the slasher room at the Fairfield Mills, Winnsboro, S. C.

J. D. Melton has accepted the position as chief engineer at the Shaw Cotton Mills, Weldon, N. C. He comes from Yorkville, S. C.

R. L. Tarbush has accepted a position as overseer of weaving at the Glenn-Raven Mill, Burlington, N. C., where he succeeds John Kluttz. He comes from the Brookford Mill, Hickory, N. C.

L. A. White succeeds Mr. Dockins as overseer of the cloth room at the Lois Cotton Mills, Douglasville, Ga.

W. E. Redd has accepted the position as superintendent of the Fairmont Cotton Mills, Fairmont, S. C.

T. J. Earnest, formerly of Danville, Va., has accepted the position as overseer of weaving at the Elizabeth Mills, Egan, Ga.

Eugene V. R. Thayer has been chosen a director of the Hamilton Woolen Company, Southbridge, Mass., to fill a vacancy.

F. E. Clements, superintendent and general manager of the Quaker City Mills, operated by Long Bros., Philadelphia, has resigned. He has accepted a similar position with the Prudential Worsted Company, of Germantown, Pa.

James Keegan has severed his connection with the Oakland Worsted Company, Oakland, R I., having been employed in the finishing department.

Charles Archer, formerly overseer of dressing, spooling and winding in the National & Providence Worsted Mills, Providence, R I., now in charge of the sewing room for the Livingston Worsted Mills, Washington, R. I., will sever his connection July 10th to take a much needed vacation.

John F. O'Neil, for the past twenty-two years assistant superintendent of the Jefferson Mfg. Company, Jefferson, Mass., has severed his connection with that company. He is succeeded by Joseph Keigley of Pawtucket, R. I.

Arthur Miller, head loom fixer at the Portland Silk Company, Hartford, Conn., has severed his connection with that company.

Charles R. Martin, for the past six years overseer of weaving at the Dumbarton Woolen Company, Dexter, Me., has severed his connection with that company. The employes of the weave room presented Mr. Martin with a handsome desk, presentation speech being made by James Dow, Jr., head bookkeeper in the mill office.

H. B. Hazen, overseer of dressing at the Pine Tree Worsted Company, Medway, Mass., has severed his connection with that company.

John A. Garvey has accepted the position as comber man at the Bibb Mfg. Company, Macon, Ga.

M. D. Capeless has accepted the position as overseer of finishing at the Linn Woolen Company, Hartland, Me. He was formerly employed at the Black River Woolen Company, Ludlow, Vt.

Jos. Hay, overseer of the carding department at the Troy Mill, Fall River, Mass., was recently surprised at his home by some of his employes. He was presented with a Morris chair and a meerschaum pipe.

W. A. Fraser has accepted the position as overseer of dyeing at the Tilton Woolen Mill, Tilton, N. H. He comes from Utica, N. Y.

W. H. Bixby, for the past eighteen years in charge of the shipping department at the Windsor Print Works, North Adams, Mass., has severed his connection with that company.

J. Harry Longbottom, formerly with the late Crum Lynne Worsted Company, Crum Lynne, Pa., and with the Cleveland Worsted Mills, Cleveland, Ohio, having occupied the position of wool buyer for the past three years, has resigned his position and is no longer with that company.

James H. Hillens, overseer of finishing for James & E. H. Wilson, Taconic Mills, Pittsfield, Mass., has severed his connection with that company.

Frederick Midgley has accepted the position as assistant dyer at the J. R. Montgomery Company, Windsor Locks, Conn.

Francis J. Moore has accepted the position as boss finisher for J. A. Humphrey & Sons Company, Monoton, New Brunswick, Canada.

Elwood Ward has accepted the position as loom fixer at the Putnam Woolen Company, Putnam, Conn. He comes from Stafford Springs.

Aaron Jewell has accepted the position as superintendent of the Oakland Mfg. Company, Raisertown, Md.

Edward C. Russell, overseer of finishing at the Beebe Webber Company, Holyoke, Mass., has severed his connection with that company.

Max Job has accepted the position as overseer of dyeing at the Rhode Island Worsted Company, Stafford Springs, Conn.

C. E. Moser, for the past four years overseer of finishing at the Manetta Mills, Lando, S. C., has severed his connection with that company. He is to accept a similar position at the Cannon Mills, Kannapolis, N. C.

William Posey has accepted the position as overseer of spinning at the Sylvan Mills, Shelbyville, Tenn.

J. N. Dillard has accepted the position as overseer of weaving at the Lafayette Cotton Mills, Lafayette, Ga. He comes from the Swift Mill, Elberton, Ga.

J. P. Bagwell has been appointed superintendent of the Belton Mills, Belton, S. C., to succeed the late James H. Cobb, who was killed in a collision June 20th, near Belton, S. C. Mr. Bagwell was formerly assistant superintendent at this mill.

J. M. Howard has accepted the position as overseer of dyeing at the Gibson Mill, Concord, N. C.

C. D. Huss has been appointed superintendent of the Rhodes Mfg. Company, Kings Mountain, N. C.

F. H. Whisnant has accepted the position as overseer of spinning at the Green River Mfg. Company, Lakewood, N. C.

W. P. Mooneyham, overseer of carding at the Brown Mfg. Company, Concord, N. C., has severed his connection with that company.

K. C. Etters, formerly of the Loray Mills, Gastonia, N. C., has accepted the position as overseer of weaving at the Highland Park Mills, Charlotte, N. C.

J. L. Dobbins has accepted the position as overseer of carding at the Cotton Export Mills, Cedartown, Ga. He comes from Enterprise, Ala.

Monroe Abernathy, night superintendent of the Lenoir Cotton Mills, Lenoir, N. C., has resigned.

W. J. Danaho, master mechanic at the Spray Cotton Mill, Spray, N. C., has resigned.

Lewis W. King, superintendent of the Harris Mfg. Company, Rock Hill, S. C., has resigned. He is to accept the position of overseer of carding at the Brown Mill, Concord, N. C.

John Harvey has accepted the position as overseer of dyeing at the Hope Mills Mfg. Company, Hope Mills, N. C. He comes from Pawtucket, R. I.

W. W. Grimes, overseer of carding at the McColl Mill, No. 5, Bennettsville, S. C., has resigned and is to accept a similar position at Kinston, N. C.

J. S. Lamb has accepted the position as overseer of weaving at the Siluria Cotton Mill Company, Siluria, Ala. He was formerly employed at the Avondale Mill, Birmingham, Ala.

W. W. Gregg succeeds W. M. Miller as overseer of carding in the Kinston Cotton Mills, Kinston, N. C. He comes from Bennettsville, S. C.

Chas. Hacking has accepted the position as overseer of weaving at the Elston Worsted Mills, Providence, R. I. He was one of the best known boss weavers in New England.

Henry Maloney has been appointed superintendent of the A. Roberts & Company's Mill, Claremont, N. H. He was formerly boss weaver at the Beebe Webber Company, Holyoke Mass., and later held a similar position with A. Roberts & Company.

Frank Leary has accepted the position as overseer of carding at the new Lincoln Mills, Fall River, Mass.

John Collier has accepted the position as superintendent of the Cocheco Mills, East Rochester, N. H., succeeding Wm. H. Buckley of Somerville, who has just resigned.

Matthew J. Fagan has accepted the position as overseer of finishing at the Bay State Worsted Company, Worcester, Mass.

William E. Chamberlin, overseer of finishing at the Saxonville Mills, Saxonville, Mass., has severed his connection to accept a similar position at the River Spinning Company, Woonsocket, R. I.

Geo. Wishart has accepted the position as overseer of dyeing at the Oneko Mills, New Bedford, Mass. Was employed formerly at the Assawaga Company, Dayville, Conn.

James Gibbons has resigned his position with the Marshall Field Lace Works, Zion City, Ill., and has re-engaged with the Patchogue Lace Mills, Patchogue, N. Y., as overseer of dyeing.

George F. Egan has accepted the position as overseer of finishing for James & E. H. Wilson, Pittsfield, Mass. He comes from Moosup, Conn.

James Woodhouse has accepted the position as overseer of carding at the Robert Dobson Company, Pittsfield, Me. He was formerly employed with Moses T. Stevens & Sons, Marland Mills, Andover, Mass.

J. J. Dougherty has accepted the position as overseer of bleaching at the Robert D. Mason Company, Pawtucket, R. I.

J. A. Davis, formerly overseer of weaving at the Royal Mill, Wake Forest, N. C., is now overseer of weaving, slashing and the cloth room at the Southern Cotton Mills, Hawkinsville, Ga.

William J. Barr, for the past four years employed at the Moosup Mills, American Woolen Company,

Moosup, Conn., as an employe in the office, has been transferred to the main office of the company at Boston, Mass.

Charles N. Sumner, for a number of years connected with the office force of the Turner's Falls Cotton Mills, Turner's Falls, Mass., has severed his connection with that company. It is reported he intends to go into business for himself. The position which Mr. Sumner has resigned is to be filled by Edson L. Page.

Jesse Knight, formerly superintendent of the Lawton Spinning Company, Providence, R. I., has resigned and accepted a position at New Bedford, Mass.

C. B. Gordon has been elected president of the Dominion Textile Company, Montreal, Canada, succeeding David Yuile.

Richard Charlton, overseer of finishing at the Southbridge Printing Company, Southbridge, Mass., has severed his connection with that company.

Arthur Maynard, formerly connected with the Specialty Weaving Company, Shelton, Conn., has accepted the position of salesman for a New York firm.

E. Magner has accepted the position as overseer of dyeing at the Sykes Woolen Mills Company, Reynoldsville, Pa.

H. F. Jones has accepted the position as overseer of weaving at the Springstein Mills, Chester, S. C.

Plato Hawkins has been appointed overseer of weaving, slashing and beaming at the Highland Park Mill, No. 1, of Charlotte, N. C.

James T. McGregor, superintendent of the Fort Mill Mfg. Company, Fort Mill, S. C., has been appointed superintendent of the Millfort Mill, same place, in addition to his other duties.

D. E. C. Clough, overseer of spinning, spooling, twisting and warping at the Paola Cotton Mills, Statesville, N. C., has severed his connection with that company, to take charge of carding and spinning at Walterboro, S. C.

L. M. Chance, superintendent of the Millfort Mills, Fort Mill, S. C., has severed his connection with that company.

Chap. Barbour, formerly second hand of the cloth room at the Washington Mills, Fries, Va., has been promoted to the position of overseer to succeed B. F. Flourney, who resigned.

James D. Smith, who for the past two years has been erecting machinery for the Lowell Machine Shops, has accepted the position as superintendent of the Star Thread Mills, Athens, Ga.

R. J. Bolen, overseer of spinning at the Woodside Mills, Greenville, S. C., has severed his connection with that company.

D. J. Sossamon, formerly engineer at the Premier Cotton Mills, Barton, Ark., has accepted the position as master mechanic at the Slater Mfg. Company, Bessemer City, N. C.

A. T. Cain has accepted the position as overseer of spinning at the Springstein Mill, Chester, S. C.

John F. Scott has accepted the position as superintendent of the Mascot Mills, Bessemer City, N. C.

Chas. R. McQueen has accepted a position as overseer of spinning at the Woodside Mill, Greenville, S. C.

E. Timmerman has been appointed overseer of carding at the Courtenay Mfg. Company, Newry, S. C.

James B. Meacham has been appointed superintendent of the Hamer Cotton Mills, Hamer, S. C.

Joseph Pineault, overseer of mule spinning at the Naumkeag Steam Cotton Company, Salem, Mass., has taken charge of the No. 2 ring spinning department.

Jos. Hargreaves has accepted a position as overseer of weaving at the Nashawena Mill, New Bedford, Mass.

Thomas Kelly has accepted a position as overseer of dyeing at the Saranac Mills, Blackstone, Mass.

Archibald Ormiston, overseer of dyeing at the Linn Woolen Company, Hartland, Me., has severed his connection with that company and is succeeded by Thomas Keefe.

James Lapraik has accepted the position as overseer of dyeing at the Norwalk Mills, Winnipauk, Conn. He was formerly employed at the Jewell Brook Woolen Company, Ludlow, Vt.

James Brophy has accepted the position as overseer of carding at the Greylock Mills, North Adams, Mass. He comes from New Bedford, Mass.

Edward Davenport, Jr., overseer of dyeing at the Wallace & Smith Blanket Mills, La Porte, Ind., has resigned to accept a similar position with the Adler Underwear & Hosiery Company, Cincinnati, Ohio.

## DEATHS.

Allen Reynolds, for many years prominent in Rhode Island textile manufacturing circles and formerly principal owner of the Davisville Woolen Company, Davisville, R. I., died at his home in that town after several weeks of illness. He was in his eighty-second year, and until his retirement from active business, a few years ago, was extensively known in mill circles throughout New England.

Thomas Sanders, treasurer of the Southbridge Printing Company, Southbridge, Mass., died July 2 of hemorrhage of the brain at the age of 64 years. No event of recent occurrence caused such general sorrow. In 1874 he and his brother, James H. Sanders, took over the business under the firm name of T. & J. H. Sanders, and for the 35 years intervening, they worked together in most

cordial amity, Thomas being treasurer, and James H., manager. He was a Mason of high degree, belonging to the Knights Templars, of Providence, Doric Chapter of Royal Arch Masons, the Aleppo Temple of the Mystic Shrine, Boston, and the Massachusetts Consistory, thirty-second degree, Scottish Rite.

Geo. R. Fogg, manufacturer of rope, twine and fishing lines at 3450 Germantown Ave., Philadelphia, died recently of heart disease at Westmont, N. J., at the age of 50 years. He was prominent in Republican politics in the 37th Ward. For years he was secretary of Richard Vaux Lodge, No. 384, F. and A. M., and belonged to other Masonic organizations.

John Fretwell, for many years a representative of leading European firms for the introduction of new manufacturing processes in this country, died at the Attleboro Sanatorium Thursday, July 1st, of heart failure, at the age of 73 years. About 20 years ago he introduced the new method of manufacturing cotton velvet, which was taken up, and is now carried on by the Richmond Manufacturing Company of Crompton, R. I. For many years he acted as correspondent for some of the leading commercial journals in this country. He is survived by his widow and two children.

John Dyson Lovett, one of Boston's old time merchants, died Tuesday, July 13, at the town residence of his son, Dr. Robert Williamson Lovett, in Fairfield St. He would have reached the age of fourscore years in October, but had been in failing health for about six months. About fifty-five years ago he organized the business of which he had ever since been the head, which now is incorporated as the Lovett, Hart & Phipps Company, with Mr. Lovett as its president. He was born in Beverly. He is survived by his wife and son, Dr. Lovett.

W. P. Spalding has accepted the position in charge of the half hose department at the Kingston Hosiery Company, Kingston, Ont., Canada.

Jos. Bachelder has accepted the position as overseer of knitting at the Magnet Knitting Mills, Clinton, Tenn.

W. A. Handley, president of the W. A. Handley Mfg. Company, Roanoke, Ala., died at his home in that town June 24th. He is survived by a widow, one daughter and a son.

Dennis Feen, who had been employed in the Whitin Machine Works, Whitinsville, Mass., up to about three years ago, died July 8 of apoplexy at the age of 60 years. He had been a resident of Whitinsville for the past thirty-eight years, and is survived by two sons and three daughters.

Theodore Milton Ives, secretary and treasurer of the American Thread Company, in New York, died at his home on Fifth Ave., July 12, at the age of 65 years. For years he was with the Willimantic Thread Company, representing it in New York as selling agent. He was born in Bristol, Conn. He is survived by a wife, two daughters and a son.

Wm. H. Burgess, senior member of the firm of William H. Burgess & Company, New York City, cotton goods converters, of 40 Leonard St., died suddenly, July 10, at his residence at Southampton, L. I., from a stroke of apoplexy. He was born in Boston in 1847, and for several years was resident representative in Paris for the firm, until he established a business in his own name. In 1895 Mr. Burgess closed up his foreign business and established the present firm of William H. Burgess & Company. He is survived by a widow and three daughters.

John W. Bennett, a mill man, having held important positions in charge of woolen mill properties, died July 7, at the home of his son, Cornelius W. Bennett, of Mechanic St., Warren, Mass., of pneumonia at the age of 80 years. He is survived by his son.

Prof. John Morse Ordway, formerly superintendent of the print works of Manchester, N. H., died recently at the age of 86 years at Saugus, Mass. He had held many important positions with chemical and textile concerns and was a professor at the Institute of Technology, Boston, and at Boston and Tolane Universities.

James A. Bill, Jr., treasurer of the Springfield Knitting Company, Springfield, Mass., died at his home, 66 Dartmouth St., after a short illness, at the age of 57 years.

Dr. J. T. Turner, president of the Exposition Cotton Mills, Atlanta, Ga., and prominently identified with other manufacturing interests in the city, died at his home at Atlanta, at the age of 70 years.

Winthrop Curtis Knowles died suddenly July 11th at his home in Overbrook, near Philadelphia, after an illness of three weeks. Mr. Knowles was connected with the cotton yarn business for several years. For the past four years he was in business for himself, handling the product of several New England yarn mills. He was born at New Bedford, Mass., and is survived by his wife.

Thomas W. Sykes, president of the Minterburn Mills Company of Rockville, Conn., died at his home in that city after a brief illness of heart disease at the age fo 67 years. He was born in Huddersfield, Yorkshire, England. He was educated in the public schools and came with his parents to America in 1852. In 1873 he was appointed manager of the Braytonville Mills, of North Adams, Mass.

J. Q. Cousart, engineer at the Walterboro Cotton Mill, Walterboro, S. C., died recently from the effects of wounds received while making some necessary repairs to the engine at the mill. He was 62 years of age.

Matthew Day died at his home, 179 Calumet St., Philadelphia. Mr. Day was an old employe of the John & James Dobson Company, carpet manufacturers, of the Falls of Schuylkill Mill. He was a member of the Shakespeare Lodge, No. 16, Order Sons Count Mifflin, No. 24, of the Forrester Lodge of America. He leaves a wife and six daughters.

## New Publications.

[Any work noticed under this head can be obtained through the office of this journal.]

The Official American Textile Directory for 1909-10; compiled by the Textile World Record; 675 pages; 23 textile maps; Lord & Nagle Company, Boston, New York and Philadelphia, publishers; Office Edition, $3.00; Travelers' Edition, $2.00.

Before this notice reaches the reader the Official American Textile Directory for 1909-10 will be out of the bindery and ready for immediate delivery.

This is the 15th annual edition, and it is an improvement over any directory for the textile trade previously compiled. A new feature added this year is the complete list of manufacturers of and dealers in cotton and woolen waste, shoddy and flocks, arranged alphabetically according to states and cities. Heretofore there has been no satisfactory list of these trades, giving the classes of goods handled and information as to whether firms were manufacturers or dealers. All these details have been given careful attention in the new list, a simple method being employed to distinguish manufacturers from dealers and brokers.

As in previous years the work of gathering information for the various departments in the directory was begun early in the year. Then a few weeks before the publication of the directory, the whole industry was canvassed by representatives and by mail, verifying and amplifying reports which have come in through other channels, and reporting other changes which had not been made public. The publishers, being also publishers of the Textile World Record, utilized the extended reporting and news gathering facilities of their organization in this work, with the result that the Official American Textile Directory has been compiled in a shorter space of time and with more thorough personal investigation than any other book of this character. This of course brings the information closer to the date of publication, insuring a higher degree of accuracy.

Some of the special features are as follows: A complete directory of textile mills of all classes with full information, such as name of company or firm, names of officers, character of goods made and machinery equipment.

Copyrighted maps, by which any town referred to in the text can be quickly located on the map. There are twenty-three of these textile maps, which show only the cities and towns where there are textile establishments and junction points. Railroad facilities, distance from other towns, etc., are shown.

A yarn trade index, which gives a classified list of manufacturers of different kinds of yarn who spin for the market; sizes of yarns spun and the way it is put up are given.

A classified list of cloth manufacturers, giving the classes of goods manufactured in every mill.

A commission and order section, giving classified lists of establishments doing all sorts of dyeing, bleaching, finishing, mercerizing, etc., on order for manufacturers and converters.

A list of mills with worsted machinery for the convenience of those dealing exclusively with that branch.

In this edition indexes have been printed on different colored paper from the mill reports, enabling quicker reference to the section desired. The running headings at the top of pages have been made to show at a glance the contents of each page.

Other features are an alphabetical index, dealers in raw materials, lists of manufacturers of and dealers in cotton and woolen waste, shoddy and flocks, selling agents and dry goods commission houses, machinery and supply section, and a list of the textile associations in the United States and Canada, with officers, addresses, etc.

Hundreds of new establishments have been included in the new Official Directory, which have not previously been listed in any publication, and thousands of changes made, including the dropping from the directory of a large number of concerns which have gone out of business.

A complete descriptive circular will be sent by the publishers on application. Copies of either the office edition or the travelers' edition can be supplied immediately on order.

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The Blue Book Textile Directory; Davison Publishing Co., 407 Broadway, New York; Office Edition, $4.00; Travelers', $3.00.

The 1909-10 edition of this familiar book has been issued and is revised up to date. Its contents and plan of arrangement are well known and include all the textile manufacturers in the United States and Canada, with commission merchants, yarn dealers, cotton, wool and waste dealers, with classified lists showing mill supplies, mills with dye houses, chemical and dyestuff manufacturers, etc. The book gives every evidence of the same careful preparation as in former years.

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Hosiery and Knit Goods Trade; Davison Publishing Co., 407 Broadway, New York, N. Y.; price, Office Edition $3.00, Pocket Edition $2.00.

The 1909-10 edition of this work has been issued with the usual features. A directory of the hosiery and knit goods manufacturers of the United States and Canada are given. Also lists and classifications of manufacturers, jobbers, retailers, manufacturers' agents, etc., are included. The work bears evidence of its usual careful preparation.

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Microphotographic Atlas of the More Important Fibers (Mikrophotographischer Atlas der technisch wichtigen Faserstoffe); by Dr. Alois Herzog, Director of the Prussian Technical School for the Textile Industry at Sorau; 9 1/2 by 13; 77 pages; 223 microphotographs and 14 wood cuts; J. B. Obernetter, Schillerstrasse 20, Munich, Germany. Price $12.

Our readers will recall an article by Dr. Herzog on "Distinguishing Linen and Cotton" published in the October, 1906, issue of the Textile World Record and which attracted widespread attention in this country. The present work deals in the same careful, systematic manner with the different vegetable fibers. It consists of 77 pages of read-

ing matter and 46 tables showing 223 microphotographs of a very high order. It is a first-class work in every sense of the word and shows plainly the author's scientific training and thoroughness. It also reflects great credit upon the engraver and printer and should find a place in every textile school in this country and in every textile laboratory. The text is in German.

## Business Literature.

How to save coal is discussed from the point of view of recovering waste heat in the chimney flue gases in a neat little booklet which is being distributed by The Green Fuel Economizer Co., Matteawan, N. Y. The booklet further describes the construction of the Green Economizer, illustrating the new extended top header, the new bottom header especially designed to avoid choking from soot, the new sectional covering and other improved features. There are several illustrations of large plants, such as the D. L. & W. Terminal power plant, which have recently been equipped with Green Economizers and Green Mechanical Draft Fans.

Feed Water Heaters as Purifiers; Wm. B. Scaife & Sons Co., Pittsburg, Pa.

This is a reprint of an article by J. C. Wm. Greth that appeared in the April issue of Industrial Engineering. It contains much useful information regarding the heating and purifying of feed water, giving the results of analyses of water before and after passing over the steam condenser and feed water heater. A copy of the pamphlet can be obtained upon application to Wm. B. Scaife & Sons Co., and should be in the possession of every manufacturer using steam boilers.

Spartan Belting: The Graton & Knight Mfg. Co., Worcester, Mass.

This is an attractive booklet of 16 pages, printed in two colors on good stock, and illustrated with ancient and modern scenes showing the connection between the name and qualities of the belting and the Spartans of old. It shows why the name "Spartan" is appropriate as applied to this company's Spartan Belting and sketches the growth of the company from 1867, with but little capital and small capacity, until now it has a paid up capital of $1,500,000 and a capacity of over 200,000 hides a year.

The booklet contains much instructive information about the qualities and uses of different beltings and tells how Spartan Belting is the result of costly experiments, to secure a belt with its peculiarly meritorious features, requiring the development of special tanning, currying and finishing methods.

The Graton & Knight Mfg. Co. make a special offer to send a Spartan Belt to any responsible manufacturer to be tested sixty days and if not as guaranteed the entire cost and freight, both ways, will be refunded.

The booklet is a credit to both the manufacturers and the Franklin P. Shumway Company, their advertising agents. It tells a lot about belting and should prove interesting to all belt users.

Blowers and Exhausters; Handbook of Information; The American Blower Co., Detroit, Mich.

This booklet gives an illustrated description of the different types of blowers and exhausters built by the American Blower Co. There are a number of illustrations of installations in glass factories.

Sirocco; The American Blower Co., Detroit, Mich.

This pamphlet contains illustrations and data regarding Sirocco fans as used on battleships and steamships.

Ventilating and Cooling; The American Blower Co., Detroit, Mich.

The importance of proper ventilation is rapidly becoming recognized in all branches of business. This booklet calls attention to the use of the "A B C" fans for ventilating factories, stores and public buildings. There are a number of excellent illustrations of the various types of fans and their application for different purposes.

The G. M. Parks Co. of Fitchburg, Mass., sole agents for the Turbo Humidifier system, inform us that they have recently closed contracts with the Woodside Cotton Mills, Greenville, S. C., the Palmer Mills, Three Rivers, Mass., and the Warner Mills at Newburyport, Mass.

## The Turbo-Humidifier.

It is barely sixteen months ago that the Turbo Humidifier was put on the market by the sole selling agents, the G. M. Parks Co. of Fitchburg, Mass., and in that short time it has received the approval and has been installed in many very representative mills. A new apparatus for this important process which is becoming more and more recognized as a necessity in most of the processes of textile manufacture, naturally receives careful investigation and mill men "want to be shown" that the claims made are justified in practice.

From month to month different installations of the Turbo Humidifier have been reported and we are informed that the most recent contracts for this device are as follows:

Unity Cotton Mills, No. 1, LaGrange, Ga.; Unity Cotton Mills, No. 2, LaGrange, Ga.; Elm City Cotton Mills, LaGrange, Ga.; Manchester Cotton Mills, Manchester, Ga.; Milstead Mfg. Co., Conyers, Ga.; Dan River Power & Mfg. Co., Danville, Va.; Riverside Cotton Mills, Danville, Va.; Waverly Mfg. Co., Laurinburg, N. C.; Woodside Mills, Greenville, S. C.; Warner Cotton Mills, Newburyport, Mass.; Lawrence Duck Co., Lawrence, Mass.; Hillsboro Mills, Hillsboro, N. H.; Palmer Mills, Three Rivers, Mass.

The first five mills mentioned are controlled by a group of capitalists of which Hon. Fuller E. Calloway of LaGrange, Ga., is the active head. The Unity No. 2 and Manchester Mills are now under construction, the other three being already in very successful operation.

The two mills at Danville, Va., are sister corporations, and Mr. H. F. Fitzgerald is treasurer of both. The Riverside Mills consists of seven different mills, of which one was equipped a few years ago with another device. The old part of the Dan River mill is already so equipped, the Turbo going into the large addition now under construction.

The Waverly Mfg. Co.'s mill at Laurinburg, N. C. is a new mill now under construction.

The Woodside Mill at Greenville, S. C., is doubling its plant, and it is in the new portion that the Turbo is going, the old part being already equipped with another device.

Most of these mills ar to be equipped with the compressed air cleaning system, for cleaning machinery, etc., which system has been developed and improved by The G. M. Parks Co., and is furnished with the Turbo-Humidifier system at a very slight additional financial outlay. This feature alone has in several cases proven itself to be of as great an aid to manufacturing as humidifiers themselves.

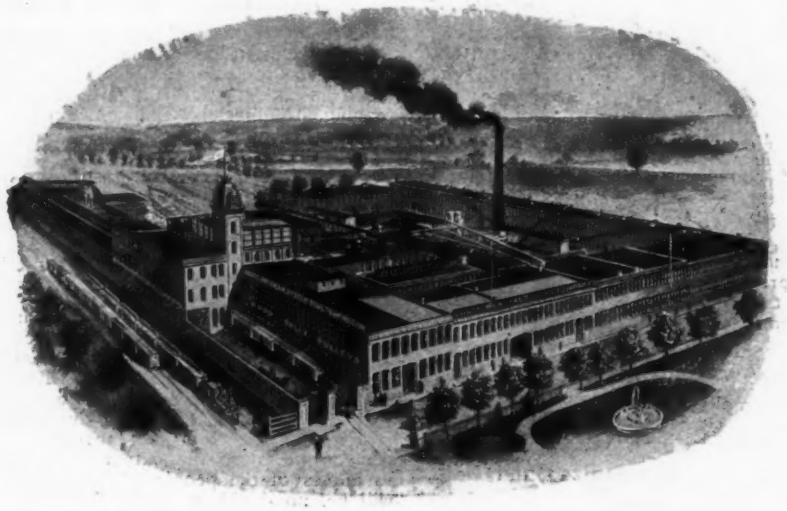
The features of the Turbo-Humidifier that are specially emphasized by the agents are:

1. Small amount of space occupied in the room, this being of practical advantage in some cases where mill is old and low posted.
2. The very slight obstruction to light and air.
3. The favorable comments made regarding it by other mills which had previously been equipped.
4. Saving in man labor, because it requires so little attention.
5. It is operated by compressed air and at a very slight additional cost a complete system of air cleaning could be installed in connection with same.

## The Dodge Manufacturing Co.

There have been many interesting stories written and told of the Dodge Manufacturing Co., Mishawaka, Ind., which is today attracting the attention of the engineering world, but the best story that has yet been given of the founding and development was that told by a series of paintings arranged on floats and used in a recent industrial parade at Mishawaka.

There was a picture of the cradle of the company way back in '78 when in a little frame shop woodenware was made and sold to dealers in that section. Then followed paintings showing the destruction of the factory in '79, and a demonstration of push in workmen busy on the foundation for a new and larger structure nearby while the embers were yet smoking and the birth of the "Independence" wood split pulley; the Dodge American system of rope transmission introduced in 1883, following the granting of letters patent for the wood split pulley; the addition of iron goods in 1890 when the Dodge idea—standardization and interchangeability—was applied to iron split pulleys, hangers, friction clutches, etc., and finally the plant today, a mammoth industry covering almost 85 acres of ground and manufacturing everything for the mechanical transmission of power, elevating and conveying machinery and the Eureka water softener and purifier.



Wallace H. Dodge, founder of the Dodge company, died in 1894 after his dream of pulleys with standard bores and interchangeable bushings to fit all sizes of shafting of stocks carried in all the manufacturing centers of the world and a factory employing hundreds of men, had been realized, but with the country in the midst of a panic. Black clouds hung over thousands of concerns

and it was in this trying period that Melville W. Mix was made president and general manager of the Dodge Corporation. He had been the Chicago manager and later the sales manager and was only 28 years old when he assumed his new responsibility. The company came out in 1898 with colors flying, the capitalization later being increased from $250,000 to $1,000,000, with a large surplus today.

Mr. Mix possessing the staying qualities requisite to win and a believer in prolific advertising, has seen the Dodge Manufacturing Co. grow until its name is known in all the markets of the universe. He is made of the stock that pushes ahead and holds the respect, the confidence and good wishes of his fellow men.

Not content with scaling the heights and perching on the top in the manufacture of machinery for the transmission of power, Mr. Mix has been successful in other lines. He is president of the National Veneer Products Co., makers of the world wide "Indestructo" trunks; president of the Mishawaka Trust and Savings Co., one of its leading financial institutions of Northern Indiana; president of the Mishawaka public improvement corporation, owners of the new $100,000 Hotel Mishawaka; a director in the Simplex Motor Car Co., manufacturers of the automobile which cut quite a figure in the Glidden tour, and a stockholder in a number of other industrial and commercial enterprises.

Mr. Mix is treasurer of the Manufacturers' Bureau of Indiana, and was president of the American Supply and Machinery Manufacturers' Association in 1908. He has always taken a lively interest in politics and for two terms was mayor of Mishawaka, accomplishing much for the city's good.

## B. F. Sturtevant Co. Reorganized and Capital Increased.

The B. F. Sturtevant Co., a Massachusetts corporation with a capital of $500,000, has been reorganized and recapitalized.

The new corporation is organized under Massachusetts laws with $1,250,000 6 per cent. cumulative preferred stock and $1,250,000 of common stock, and the stock has all been taken by a few of the large owners. John Carr, chairman of the board of directors of the First National Bank, is president, Eugene N. Foss is treasurer, and E. B. Freeman has been elected general manager.

The increased capitalization represents capital expenditures during the past year, largely in the erection of a new plant in Hyde Park which cost over $1,500,000.

The B. F. Sturtevant Co. has been doing a business of about $3,000,000 a year. The fan and blower business of the company had so increased that it was necessary to enlarge their capital to handle the increased business. The concern is intending to add still further to its plant next spring.

The Carlyle-Johnson Machine Co. have removed to their new factory at Manchester, Conn. In their new quarters their facilities will be greatly improved. They have outgrown their former plant at Hartford and their new shop has every facility for conducting their growing business.

## Installing Hygrosso Humidifiers.

The Dunmore Silk Co., Scranton, Pa., have installed the Hygrosso Humidifiers.

A. J. Cameron & Co., worsted spinners of Philadelphia, Pa., have placed an order for the Hygrosso Humidifiers.

Fall River Iron Works Co., Fall River, Mass., are making their sixth complete installation of the Hygrosso since January.

Cheney Bros., silk manufacturers, South Manchester, Conn., have placed an order for an installation of the Hygrosso Humidifiers.

Keyser Silk Throwing Co., whose plant is at Scranton, Pa., have installed the Hygrosso Humidifiers.

## Lancashire is Rich in Patriots.

Indian merchants and politicians have never disguised the intention of the Swadeshi movement as being to lessen the sale of Lancashire cotton goods in India. With regard to spinning and weaving, its object is "India for India." No legitimate objection can be made to that sentiment, though the movement has certainly been carried on in a way to induce open hostility to Lancashire piece goods; and it is not an unwarranted surmise that Swadeshi is really more than a commercial agitation.

Last week end much interest was aroused in Manchester by the presence of the Hon. Surendranath Banerjee, the editor of "The Bangali," who was one of the delegates attending the Imperial Press Conference. Mr. Banerjee is a loyal Indian subject, and he came to England to assure us of India's faithfulness to the Empire in all things. But in an interview with a representative of the "Manchester Evening Chronicle" he remarked that the Swadeshi movement had taken firm root, even to the extent of having invaded the homes of the people. "The effect," he said, "will be, no doubt, a diminution in the purchase of Manchester piece goods; but I was glad to find that Mr. Francis Ashworth, the president of the Manchester Chamber of Commerce, last night, said that Manchester does not grudge that fact. Manchester is rich enough in patriots to look with sympathy and tolerance on the Swadeshi movement." We believe Lancashire is both tolerant and generous; but such an attitude is not incompatible with their objecting to the Indian populace being taught to despise fabrics of Lancashire manufacture. However, Mr. Banerjee proceeded: "Altogether the Swadeshi movement has given a great impetus to our home industries. We are all advocates of the Swadeshi movement, but, of course, we are entirely opposed to the use of force or violence; moral persuasion is quite effective enough to advance the movement." It is a movement which Lancashire manufacturers need to watch with care as well as with sympathy.—Textile Mercury.

In doubling the capacity of its power plant, the Arlington Mills, Lawrence, Mass., will duplicate the present equipment of eight 500 h. p. Manning boilers, each of which will have a 4-retort Taylor gravity-underfeed stoker. With this type of stoker, a turbine-driven undergrate draft fan, and air heated by the flue gas, the new equipment is destined to show remarkable economy.

## Cleaner Wool and Saving in Dyestuff.

The question of soft, clean and pure water means more to the textile manufacturer than to most other lines, for not only does he want soft water in the power plant, but it is very necessary in the scouring, dyeing and bleaching, in order to get the best results.

The Eureka system, installed by the Dodge Mfg. Co., Mishawaka, Ind., supplies pure, clean, soft water for the entire plant. It has been installed in a number of textile mills and the manufacturers have received some very strong letters of indorsement.

The South Bend Woolen Co., a 10-set mill, at South Bend, Ind., installed this system and after some months wrote to the manufacturers as follows:

Dodge Manufacturing Co., Mishawaka, Ind.

Gentlemen: The Eureka Water Softener and filter, which you recently installed in our plant, is proving its value to us daily.

It has already removed practically all the scale in the boilers, and by use of the soft water we are enabled to wash our wool with considerably less scouring liquor, and at the same time have the wool cleaner and loftier.

It also enables us to get better and more even results in dyeing the wool and we have no doubt we will be able to hold our shades throughout the season much better than we ever could before, and with the use of a less quantity of dye.

The use of the soft water on our cloth washers is saving us a very large quantity of soap and is washing the goods cleaner and in much less time.

While the Eureka Softener has not been in use in our plant long enough for us to know with certainty the amount of money it is saving us, we are thoroughly convinced that it will pay for itself in a very short time and we would not be without it under any consideration.

Very truly yours,
South Bend Woolen Co.,
Henry G. Niles, Jr., Treas.

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Edwin M. Goldsmith, for many years Director and Secretary of the Friedberger-Aaron Mfg. Company, on July 1 entered into active association with the business of the corporation. It is expected that he will materially contribute to the maintenance of the enviable position occupied by the company in the trade and the advancement of its productiveness. Mr. Goldsmith has been a successful manufacturer of men's clothing and has been in this relation for a long period of years associated with the firm of N. Snellenburg & Co.

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## Large Orders for New Comins Sectional Humidifiers.

The American Moistening Co., Boston, Mass., report a large volume of business with systems being installed and orders in hand, calling for over 1,200 of their new Comins sectional humidifiers.

## Efficiency of Production.

For many reasons, all too well known to manufacturers, efficiency of production must be the watchword of the future. Needless waste, whether in labor, material or process, is becoming incompatible with dividends. All this means the application of the scientific method to the selection of supplies and the processes of manufacture. Certain trades have long been fortunate in having special laboratories with trained experts at their command. The development in the organization and increase in the facilities of these laboratories point to an appreciation of the value of their service which is a healthful sign of progress in many lines of industry.

The recent incorporation of the laboratory of engineering chemistry conducted by Arthur D. Little, of Boston, Mass., is worthy of special mention as a healthful sign of progress along the lines just mentioned. Although established since 1886, and showing a satisfactory growth meantime, it was not until 1906 that the demand for the services of the laboratory forced Mr. Little to double his equipment in order to meet the requirements of his growing clientele. Since then the demand for expert opinion in many industrial lines has been so great that the incorporation of the business of the laboratory was decided on as a means of safeguarding the interests of those concerned and as an act of preparedness for future extensions of business which will probably be necessary, judging from the record of the past.

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## The Schreiner Finish.

The expiration in June of the German patent rights for the well-known Schreiner finish is a matter of interest to English producers. As is well known, the English courts declared the patent invalid, but it was upheld by the German courts, and as the royalties demanded by the German holders—the J. P. Bemberg Company, of Barmen—are pretty heavy, practically no English schreinered goods have been imported into Germany, though as the goods which are given this particular finish are the most expensive class of cottons, some business could doubtless be done with Germany both in prints and plains. Another result has been to keep German productions from competing in the English market, and it is not unlikely that the style will be more energetically exploited by German finishers when no licenses are required, and that an attempt will be made to obtain orders for mercerizing, dyeing and finishing sateens on the duty-free "temporary admission" basis.

The original patent was taken out on June 23, 1894, by Robert Deissler, Berlin, and became the property of Messrs. F. Mommer, of Barmen. This concern was afterwards absorbed by the Bemberg Company, and the English patent was taken out in 1895 by Dr. Ludwig Schreiner, managing director of the Bemberg Company. Hence what in Germany is known as the Mommer finish is called here the Schreiner finish. Exactly what the patentee had in mind is not clear from the

specifications, and neither the German nor the English specification can be said to cover what actually is done in the finishing process, viz., the calendering of the cloth with a heated roller engraved with lines, of which upwards of 150 are ruled in a single inch. The finish was applied by the Bemberg Company, and later by the Bradford Dyers' Association, to mercerized sateens, and no sooner were these on the market than competitors realized that there was an enormous future for these goods, and there was a feverish search for previous patents covering the same ground.

Two English patents, those of Appleby and Kirkham, taken out in 1860 and 1885 respectively, were put forward, and lawsuits were soon commenced in various countries. In France, Austria and England the patent was declared invalid; in Germany, however, after numerous actions, the High Court declared in favor of the Bemberg Company. The view taken in Germany was that though the Deissler invention was identical in principle with the Kirkham patent, a closer ruling of the lines than was there provided for resulted in an entirely new effect, and whereas the Kirkham calender produced merely a moire effect, the Mommer calender, where the lines are so close together as to be individually indistinguishable to the naked eye, produces a real silk effect.

Several legal modifications of the patent have been attempted, but none appears to have found any practical use, with the exception of the net or diamond engraving introduced by Messrs. Eck & Co., of Dusseldorf, which certainly gives a very bright finish. In the famous lawsuit between the Bradford Dyers' Association, who purchased the English rights in the Schreiner patent, and Bury, the English courts took the view that the patent was not accurately described in the specification, and that the actual process employed could not form the subject of a new patent, being merely a modification of Appleby's and Kirkham's methods. This decision, given by Mr. Justice Joyce on Jan. 15, 1901, was appealed against, but was upheld by Lord Justices Romer and Cozens-Hardy on Nov. 29, 1901. In the course of the lawsuit the Bradford Dyers' Association stated that during the two years 1898-9 they had schreinered about forty million yards of cloth, and it would be interesting to know how many hundred million yards have since passed through the Schreiner calenders of their competitors.

A considerable amount of schreinering is done for the home trade, but the greater proportion is for the Far Eastern markets, especially China. Even at the present competitive rates schreinering is a profitable branch of the finishing industry, provided it can be well done. The high pressure and temperature under which the operation is conducted have a decided tendency to "tender" the fiber, particularly in the case of Aniline Black. This is not very noticeable if a satisfactory finish is obtained at the first attempt, but should it be necessary to wash out and finish and repeat the operation, it may easily prove more than the cloth can stand. Considerable technical skill and ability are undoubtedly essential if this style is to be successfully produced.

There are numerous methods of production, differing from each other more or less in detail, but the following brief description may be considered to cover the main operations through which a piece passes. The goods are first well singed (an operation which cannot be too thoroughly carried out), then "malted," and afterwards boiled with soda, washed well, passed through the water calender, then through the strong caustic lye for mercerizing, over the mercerizing machine, when the cloth is well washed before passing into the bleach-house to be boiled, etc.

After dyeing the pieces are well sheared in order to remove any loose threads or hairs left after singeing. The finish is applied generally to the back of the cloth, and consists usually of some vegetable gum. After this the cloth is often passed through an ordinary calender before going through the Schreiner calender. The exact temperature and pressure employed, and the class of engraving, depend on the style of finish required and the quality of the cloth treated. Practical experience alone can settle these points.—Manchester Guardian.

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E. W. Murphey & Co., of Hudson, N. Y., who have carried on a large business in mill supplies throughout the Mohawk Valley, have sold their entire supply business, including stock of goods, good-will, the Eureka trademark, etc., to Jones & Hardy, Inc., of Hudson, N. Y., who will merge their business with their own in the same line.

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Among recent orders and shipments of steam turbines by the Allis-Chalmers Co. we note the Glenlyon Dye Works, Phillipsdale, R. I., the Royal Weaving Co., Pawtucket, R. I., 1500 k. w., the Aldrich Mfg. Co., Moosup, Conn., 300 k. w.

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H. Brinton Co. report this year as the busiest one in the history of their concern. They are ordered for several months ahead and parties wanting autumn deliveries find it advantageous to place their orders early.

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## Sydney Wool-Brokers' Association.

Nearly all the wool-selling firms in Sydney, N.S.W., have come together, and agreed to form a Wool-selling Brokers' Association, and thus secure uniformity in the selling charges. The following are the charges to be made to the growers:

On clips £200 and under, 2 1/2 per cent.

On clips over £200 and under £500, 1 1/2 per cent.

On clips £500 and over, 1 1/4 per cent.

Receiving, weighing, warehousing, lotting, repacking sample bales, advertising, fire insurance, sale expenses, etc., 1/8d. per lb.

Wool offered for sale but not sold, 1s. per bale.

Uniformity in selling charges as between Brisbane, Sydney, Melbourne, and Geelong, will be aimed at, and is certainly desirable. Whether the 1/8d. per lb. charged by the selling firms to buy-

ers will be continued is not stated, but, as this charge is made in Melbourne and Brisbane, it will probably be adhered to in Sydney.

The difference between the new scale of charges and that under which wool has of late years been sold in Sydney is not great, and it is claimed that the formation of the Association will serve to bring about an effective control of the wool trade generally, to the advantage of growers and their agents, and the buyers as well. That the selling houses should have some compensation for warehousing wool for long periods in times of marked depression will no doubt be generally conceded (says our Sydney correspondent); but if the rates for conducting the business needed revision in this and other respects it seems a matter of regret that some arrangement could not have been come to under which all the charges for selling wool should be borne by the owner of the wool.—The Textile Mercury.

## The Tariff Question in England.

The case for the cotton trade was presented by Sir W. H. Holland. He began with the assumption that those who knew something of the cotton trade were opposed to any abandonment of the Free Trade principles. It may then be of interest to tabulate the reasons given by Sir William for the strong faith that is in him. They may be put as follows:

(1) England is more dependent on the outside world probably than any other country that has any sort of trade.

(2) Since Mr. Chamberlain made his pronouncement respecting the need of a change in our tariff system, the volume of our exports of manufactured goods and yarns soared, at any rate during 1907, to an unprecedented level, having exceeded 100 millions sterling.

(3) The spindles in this country number something like 54 or 55 millions, out of a total of 130 millions throughout the world, and because of this enormous production, and because of the advantages enjoyed by those connected with the cotton trade, the world's buyers come here when they require to buy any cotton goods.

(4) Free Trade has been undoubtedly, the chief factor in giving us this supreme command, while hostile tariffs in other countries have weakened their position as competitors.

(5) England produces now much more favorably, much more economically, than does any other nation.

(6) Under Tariff Reform the cost of buildings and machinery would increase greatly.

(7) By tariff tinkering, the home market might conceivably be preserved intact—but how much good would that do the cotton trade when about three-quarters of what goods are made find an outlet in foreign markets?

These, then, are the arguments that fiscal reformers have to meet as regards the cotton industry.

No cotton spinners or manufacturers would desire to return to the old days of Protectionism; yet it may properly be pointed out that in those days England controlled 75 per cent. of the cotton industry of the world, while now, calculated by spindleage, she holds about 42 per cent. In the ten years from 1897-98 to 1907-08 the percentages of increase in spindles in the various countries were: Great Britain, 21 3/5; Continental Europe, 18; United States (Northern and Southern), 51 4/5; India, 35. For the same decade, the percentages of increase in the annual consumption of raw cotton have been: Great Britain, 10 1/5; Europe, 23 1/6; United States, 45 2/5; India, 31 4/5.

Taking a most reasonable view, these figures indicate that Protectionism, carried out even under rigid conditions, does not bring devastation upon a national cotton industry. Indeed the one important point in Sir Wm. Holland's statement of the case for the status quo is that which we have numbered (6)—and that point is mere assumption; it can neither be established nor controverted. As a matter of fact, our cotton industry has little to gain directly from Protection pure and simple, and still less to lose. But if Tariff Reform brought about the partial lowering of foreign hostile tariffs, the gain ought to be very considerable; and the likelihood of its achieving some such results is what commends it to such members of the trade as approve of it in principle.—Textile Mercury.

The Tamarack Company, Pawtucket, R. I., which have just completed a large modern weaving and spooling plant, have awarded contract to John W. Fries, 45 Lafayette St., New York, to equip their entire new mill with humidifiers. The installation at the above plant will consist of the direct connected individual drive Hygrosso, the same type of apparatus as was recently installed in the new silk mill of the Leader Weaving Co., Central Falls, R. I.

New York, Minetto. The Columbia Shade Cloth Co. plan to make extensive enlargements to their mill, and it is reported, will erect a cotton mill in the spring of 1910, which will give employment to about 400 operatives. The company's main office is at 27-35 West 24th St., New York. In 1908 this company bought the Minetto Shade Cloth Co. and the Meriden Curtain Fixture Co. of Meriden, Conn., and combined the two plants at Minetto.

*Pennsylvania, Allentown. About July 15 the Lehigh Bleachery & Dyeing Co. will complete its plant and begin manufacturing. The buildings are located at 20th and Fairview Sts. A general business of bleaching and dyeing of all kinds of cotton knit goods will be done. Their capital stock is $10,000. James T. C. Krasley is president Irwin A. Krasley, is treasurer, and Oliver Krasley is vice president, general manager and buyer. They can bleach 5,000 pounds and dye 2,000 pounds daily. Later on they will probably be interested in mercerizing machinery.

# Recent Textile Patents.

DYEING, BLEACHING, Etc. Apparatus for. 926,782. Albert W. Thompson, Manchester, N. H.

DYEING MACHINE. 927,599. Joseph Richardson and Jacob F. Neef, Philadelphia, Pa.

KNITTED FABRIC. 928,221. Robert W. Scott, Leeds Point, N. J., assignor to The General Knit Fabric Co., Utica, N. Y.

KNITTED FABRIC. Ribbed. 928,222. Robert W. Scott, Leeds Point, N. J., assignor to the General Knit Fabric Co., Utica, N. Y.

KNITTING MACHINE. 927,915. Nicholas J. Winlund, Rockford, Ill., assignor to Winlund Knitting Co., Rockford, Ill.

KNITTING MACHINE. 927,916. Nicholas J. Winlund, Rockford, Ill., assignor to Winlund Knitting Co., Rockford, Ill.

KNITTING MACHINE Attachment. Circular. 926,629. Harry H. West, Plymouth, Mass.

KNITTING MACHINES. Fashioning Device for Straight. Charles H. Usher, Chicopee Falls, Mass., assignor to Lamb Knitting Machine Co., Chicopee Falls, Mass.

LOOM ATTACHMENT. 926,447. William P. Watson, Middletown, Conn., assignor of one-third to Peter B. Watson, Columbia, Pa., and one-third to Eugene H. Burckhardt, New York.

LOOM. Filling Replenishing. 926,354. Jonas Northrop, Hopedale, Mass., assignor to William F. Draper, Hopedale, Mass.

LOOM SHUTTLE. 928,077. Isaac Snow, Lawrence, Mass.

LOOM SHUTTLE. 926,678. Jonas Northrop and Everett S. Wood, Hopedale, Mass., assignors to William F. Draper, Hopedale, Mass.

LOOM SHUTTLE. 926,692. Artemas B. Edmands, Milford Mass., assignor to William F. Draper, Hopedale, Mass.

LOOM SHUTTLE Box. Bobbin-changing. 926,480. Johannes Gabler, Muelhausen, Germany.

LOOM WEFT Replenishing Mechanism. 926,918. Heinrich Zwicky, Schindellegi, Switzerland.

LOOMS. Pick Matching Mechanism for Automatic Weft-replenishing. 927,662. George H. Leitner and William E. Johnson, Augusta, Ga.

SILK IN HANKS. Apparatus for Treating. 926,429. Fritz Lindenmeyer, Basel, Switzerland, assignor to the firm of Gebruder Schmid, Basel, Switzerland.

SPINNING FRAMES. Receptacle for Travelers for Ring. 928,177. Louis S. Burbank, Hopedale, Mass., assignor to the Draper Co., Hopedale, Mass.

SPINNING, Twisting and Doubling Machinery. 927,343. Sebastian Ziani de Ferranti, Grindleford, England.

WEAVING MACHINE. 927,752. Engelbert Reuter, New York.

WOVEN FABRIC. 926,868. Robert A. Hammond, Sandwich, Mass.

WOVEN FABRIC. 926,310. Joseph P. Zepp and Albert E. Coulthard, Peterborough, Ontario, Canada.

## Recent Textile Trademarks Registered.

"Monogram." Silks, velvets, cotton and wool dress fabrics. Tootle-Campbell Dry Goods Co., St. Joseph, Mo.

"Southern Silk." Cotton plaid shirtings. Cone Export & Commission Co., New York.

"Mechera." Silk piece goods, linen and cotton piece goods. Societe Atuyer, Bianchini Ferier & Co., Lyon, France.

"Arbeeko." Dress and plaited shirts. Roggen Bros. & Co., New York.

"Maypole." Men's, women's and children's hosiery, undershirts, drawers, etc. H. S. Meyer & Co., St. Joseph, Mo.

"P. and M." Silk piece goods and silk ribbons. Pelgram & Meyer, New York.

"Fifth Avenue." Hosiery. A. B. Andrews Co., New York.

"Charter." Dress-shirts and other stiff bosom shirts. Holland Shirt Co., Newark, N. J.

"Rellim." Hosiery. Solomon S. Miller, Reading, Pa.

Pennsylvania, Philadelphia. The capacity of the Invincible Dye Works has been doubled, new hydro-extractors, automatic dyeing machines and other machinery being added. The plant, which is being operated by Receiver L. A. Williams, is extremely busy.

Pennsylvania, Philadelphia. The John H. Hughes Co., 2320 N. 8th St., coners, reelers and winders of yarns on 250 spindles, are installing new cone winders (Foster) just received from the builders, in their plant at 240 W. Dauphin St.

Pennsylvania, Philadelphia. The Interlined Rug Co., whose office is at 1065 Drexel Bldg., have secured a building on Pacific St., each of Richmond, in which they will install their machinery and commence operations on or about the middle of August next. The building is a new one, 65 by 75 feet, of brick construction.

Pennsylvania, Philadelphia. S. B. Colladay, in conjunction with other parties, is arranging for the starting up of a plant in this city for the manufacture of artificial silk. Mr. Colladay is connected with the Hensel, Colladay Co., Franklin and Vine Sts., large manufacturers of dress and cloak trimmings. It is not known when the plant will be started.

West Virginia, Parsons. M. C. Feather, C. D. Smith, and S. O. Billings are interested in the establishment of a silk mill.

# C. E. RILEY COMPANY

65 Franklin Street, .. BOSTON, MASS.

COTTON AND COTTON GOODS YARNS

DIRECT IMPORTERS OF EGYPTIAN COTTON

COTTON WOOLEN WORSTED MACHINERY

# Thomas Broadbent & Sons,

Huddersfield, Eng.

PATENT DIRECT STEAM DRIVEN

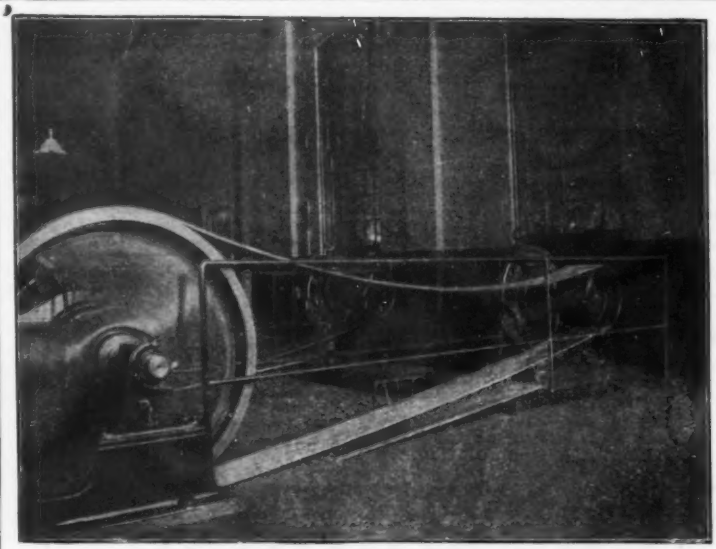
## HYDRO-EXTRACTORS

OVER 3500 IN USE. ALSO ELECTRICALLY DRIVEN

SUSPENDED ON LINKS. REQUIRING NO EXPENSIVE FOUNDATIONS

C. E. RILEY COMPANY, Sole Agents 65 Franklin St., Boston, Mass.

Machines Kept in Stock in Boston



## Static Electricity In Belts

This belt is an example of the way Cling-Surface will stop generation of static.

It was full of static, running tight and slipping more or less.

Cling-Surface stopped the slipping so belt could run slack and gave the soft, velvety face which Cling-Surface produces.

Static stopped at once and you note the chains, formerly used for grounding, pushed aside.

Cling-Surface will prevent static in every belt or rope you run, no matter what weather conditions are and we guarantee it. Write us or try at our risk.

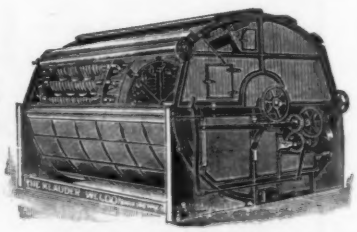
CLING-SURFACE COMPANY 1051 Niagara Street BUFFALO N Y

NEW YORK BOSTON ATLANTA MEMPHIS, Etc.

RAW WOOL AND COTTON MACHINE.

MACHINES sold on 2 MONTHS' TRIAL

YOU TAKE NO RISK

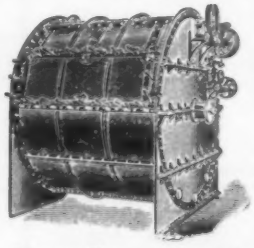


SKEIN AND SLUBBING MACHINE.

# THE KLAUDER-WELDON DYEING MACHINE COMPANY

HUDDERSFIELD, ENGLAND. *AMSTERDAM, N. Y.*

**Machines for Dyeing, Bleaching and Scouring** Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.

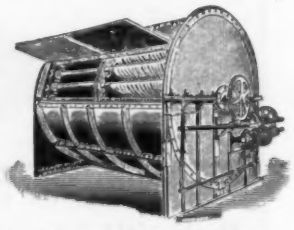


SULPHUR HOSIERY MACHINE.

**Special Machines for Sulphur Colors**

WILL EARN THEIR COST IN LABOR ALONE IN FROM 6 TO 12 MONTHS ACCORDING TO CAPACITY

Southern Agent, O. A. ROBBINS, Charlotte, N. C.



SULPHUR SKEIN MACHINE.

# Buyers' Index

The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under desired headings will please notify the publishers. Such omissions are accidental, not intentional.

**Accountants.**
American Cost Accountant Co.

**Air Moistening System.**
American Moistening Co.
Bell Pure Air & Cooling Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.
Fries, John W.
Parks, G. M., Co.
Schutte & Koerting Co.

**Architects and Mill Engineers.**
Dean, F. W.
Ferguson, John W.
Cramer, Stuart W.

**Asphalt Tanks.**
Scaife, W. B., & Sons.

**Automatic Feeds for Cotton and Wool.**
Kitson Machine Co.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Schofield, Wm., Co.
Woonsocket Machine & Press Co.

**Bale Ties.**
Acme Steel Goods Co.
Reliable Tie Co.

**Baling Presses.**
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.
Minnich Machine Works.

**Bandings.**
—See under Yarns.

**Baskets.**
Lane, W. T., & Bro.

**Beams (Steel).**
Mossberg, Frank, Co.

**Bearing Metals.**
Dodge Mfg. Co.

**Belting.**
Burnham, E. E., Co.
Gandy Belting Co.
Graton & Knight Belting Co.
Rhoades, J. E., & Sons.
Schierin Co., Chas. A.
Shultz Belting Co.
Turner Mfg. Co., J. S.
—See also Mill Supplies.

**Belt Dressing.**
Cling Surface Mfg. Co.
Dixon, Jos., Crucible Co.
Schieren, Chas. A., Co.
Shultz Belting Co.
Stephenson Mfg. Co.

**Belt Lacing Machines.**
Birdsboro Steel Foundry & Machine Co.

**Bindings.**
—See Tapes and Braids.

**Bleaching Kiers.**
Arlington Mch. Wks. (Arthur Birch, prop.)
Buhlmann, A. W.
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

**Bleaching Materials.**
Bosson & Lane.
Carbondale Calcium Co.
Danker & Marston.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co., The.

**Blowers and Blower Systems.**
American Blower Co.
Cameron Machine Co.
Dean Bros. Steam Pump Works.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.
Schnitzler, Chas. H.
Sirocco Engineering Co.

**Bobbins, Spools, Shuttles, Etc.**
American Supply Co.
American Textile Specialty Mchy. Co.
Buhlmann, A. W.
Leigh, Evan A.
Lestershire Spool & Bobbin Co.
Mossberg, Frank, Co.
Speed & Stephenson.
Tebbets, E. L., & Co.
Wilson & Co.

**Bobbin Winders.**
Lever, Oswald Co.
Universal Winding Co.

**Boilers.**
—See Steam Boilers.

**Boxes, Cloth Boards, Etc.**
Pearson, J. T.

**Box Strapping.**
Acme Steel Goods Co.

**Braiding Machinery.**
Mason Mfg. Co.
New England Butt Co.
Textile Machine Works.

**Braids.**
—See Tapes, Braids and Edgings.

**Brass Hinges.**
Root, C. J., Co.

**Bridges.**
Scaife, W. B., & Sons.

**Brushers.**
—See Napping Machines.

**Brushes.**
Felton, S. A., & Son Co.
Mason Brush Works.

**Burr Pickers.**
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

**Calico Printers' Machinery and Supplies.**
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Taunton-New Bedford Copper Co.
Textile Finishing Mchy. Co.
—See also Dyeing, Bleaching, Machinery, etc.

**Canvas Baskets.**
Lane, W. T., & Bro.

**Cap Spindles.**
American Textile Specialty Mchy. Co
Hall, F. A., & P.
Speed & Stephenson.

**Caps.**
Calder Machine Works.

**Carbonising Machinery.**
Birch Bros., Somerville Machine Wks.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Schuchardt & Schutte.
Tolhurst Machine Works.

**Card Clothing.**
Ashworth Bros.
Buhlmann, A. W.
Crabb, Wm., & Co.
Howard Bros. Mfg. Co.
Leigh, Evan A.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Speed & Stephenson.

**Carded Cotton.**
Blaisdell, S., Jr., Company.

**Card Feeds.**
—See Automatic Feeds.

**Card Grinding Machinery.**
Entwistle, T. C., Co.
Leigh, Evan A.
Riley, C. E., Company.
Smith & Furbush Machine Co.
Richards, Atkinson & Haserick.

**Carders' Tools.**
Brown, Wm. H., Co.

**Carpet Machinery.**
Altemus, Jacob K.
Curtis & Marble Machine Co.
Philadelphia Textile Machinery Co.
Smith & Furbush Machine Co.

**Castings.**
Farrel Foundry and Machine Co.
Schofield, Wm., Co.

**Cell Driers.**
Cell Drier Machine Co.

**Cement Pans.**
Scaife, W. B., & Sons.

**Chemicals.**
Harding, Fancourt & Scull.
Roessler & Hasslacher Chemical Co.

**Chemists.**
Little, Inc., Arthur D.
McKenna, Dr. Chas. F.

**Cling Surface.**
Cling Surface Mfg. Co.

**Clocks.**
Pettes & Randall Co.

**Cloth Boards.**
Chaffee Bros.
Pearson, J. T.
Richardson Brothers.

**Cloth Cutting Machinery.**
Adams, A. L.
Cameron Machine Co.

**Cloth Expanders.**
American Finishing Machinery Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Leyland, Thomas, & Co.
Textile Finishing Machinery Co.

**Cloth Testers.**
Scott, Henry L., & Co.

**Clutches.**
American Tool & Machine Co.
Dodge Mfg. Co.
Hunter, James, Machine Co.
Mossberg Wrench Co.

**Coal.**
Darrow Mann Co.

**Coal Analysis.**
Little, Inc., A. D.

**Combs (Wool and Cotton).**
Hood, R. H., Company.
Jefferon, Edward, & Brother.
Leigh, Evan A.
Philadelphia Textile Machinery Co.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Speed & Stephenson.
Turner Mfg. Co., J. S.

**Condensers.**
Dean Bros. Steam Pump Works.

**Conditioning of Textile Fabrics.**
U. S. Silk Conditioning Works.

**Conveying Systems.**
Dodge Mfg. Co.
Schnitzler, C. H.
Sturtevant, B. F., Co.

**Cop Machinery.**
Eppler, John, Mach. Works.

**Cop Tubes.**
American Textile Specialty Mchy. Co.
Buhlmann, A. W.
Hall, F. A., & P.
—See Paper Tubes.

**Copper Print Rollers.**
Taunton-New Bedford Copper Co.

**Coppersmiths.**
Badger, E. B., & Sons Co.

**Copper Work for Dyers.**
Badger, E. B., & Sons Co.
Butterworth, H. W., & Sons Co.
Harrington & King Perforating Co.
Textile Finishing Machinery Co.

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Scaife, W. B., & Sons.

**Cotton.**
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Charles, W. B.
Riley, C. E., Company.
Schwartz, L. H. A., & Co.

**Cotton Machinery.**
Altemus, Jacob K.
American Textile Specialty Mchy. Co.
Ashworth Bros.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cramer, Stuart W.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Dixon Lubricating Saddle Co.
Draper Company.
Easton-Burnham Co.
Elliott & Hall.
Richards, Atkinson & Haserick.
Entwistle, T. C., Co.
Firth, William, Co.
Haskell-Dawes Machine Co.
Howard & Bullough American Mach. Co.
Kilburn, Lincoln & Co.
Kip-Armstrong Co.
Kitson Machine Co.
Klauder-Weldon Dyeing Machine Co.
Leigh, Evan A.
Lowell Machine Shop.
Mason Machine Works.
McKerrow, H. G., Co., Ltd.
Metallic Drawing Roll Co., The.
Palmer, I. E., Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Providence Machine Co.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Saco & Pettee Machine Shops.
Schofield, Geo. L.
Schwartz, L. H. A., & Co.
Smith & Furbush Machine Co.
Stafford Co., The.
Textile Finishing Machinery Co.
Textile Machinery Co.
Whitin Machine Works.
Wildman Mfg. Co.
Woonsocket Machine & Press Co.

**Cotton Openers and Lappers.**
Howard & Bullough American Mach. Co.
Kitson Machine Co.
Leigh, Evan A.
Richards, Atkinson & Haserick.
Riley, C. E., Company.

**Cotton Softeners.**
Bosson & Lane.
Burckhardt & Co.
Danker & Marston.
Harding, Fancourt & Scull.
Seydel Mfg. Co., The.

**Cotton Waste.**
Blaisdell, S., Jr., Co.
Charles, W. B.
Schofield, Edwin F.

**Counting Machines.**
Root, C. J., & Co.
Schuhardt & Schutte.

**Crayons.**
Dixon, Jos., Crucible Co.
Lowell Crayon Co.

**Creosote.**
Carbolineum Wood Preserving Co.

**Cutting Machines.**
Adams, A. L.
Cameron Machine Co.

**Cylinder Oil (Superheated Steam).**
Power Specialty Co.

**Disinfectants.**
Seydel Mfg. Co., The.

**Dobbies.**
Crompton & Knowles Loom Works.
Kilburn, Lincoln & Co.
Stafford Co., The.

**Dobby Chain.**
Nuttall, George.

**Doupe Cutters.**
Cameron Machine Co.

**Draughtsmen.**
Cameron Machine Co.

**Drawing Rolls.**
Jefferson, Edward, & Brother.
Hood, R. H., Company.
Metallic Drawing Roll Co., The.
Speed & Stephenson.

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Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Hunter, Jas., Machine Co.
Jefferson, Edward, & Brother.
Kenyon, D. R., & Son.
Philadelphia Drying Machinery Co.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Sturtevant, B. F., Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

**Drying Boards.**
Bull, William C.
Pearson, J. T.
Philadelphia Drying Mchy. Co.

**Dusters.**
——See Wool and Waste Dusters.

**Dust Collectors.**
American Blower Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

**Dyers, Bleachers and Finishers.**
Brophy's, T., Sons.
Davidson, J. F.
Firth & Foster Co.
Globe Dye Works Co.
Home Bleach & Dye Works.
Hopkinson Dyeing & Textile Works.
Lorimer's, The Wm. H., & Sons Co.
Pawtucket Dyeing & Bleaching Co.
Peerless Co.
Solway Dyeing & Textile Co.
Utica Willowvale Bleaching Co.
Western Thread & Dye Works.

**Dyeing, Drying, Bleaching and Finishing Machinery.**
American Blower Co.
American Laundry Mchy. Mfg. Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch, Arthur, Arlington Mch. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Curtis & Marble Machine Co.
Delahunty Dyeing Mach. Co.
Dyeing & Finishing Machine Works.
Entwistle, T. C., Co.
Gessner, David.
Heathcote, John, & Son.
Hopkins Machine Works.
Hunter, James, Machine Co.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Machine Co.
Klipstein, A., & Co.
Leigh, Evan A.
Leyland, Thos., & Co.
National Laundry Machinery Co.
Parks & Woolson Machine Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Rodney Hunt Mach. Co.
Schwartz, L. H. A., & Co.
Schuhardt & Schutte.
Smith, Drum & Co.
Sturtevant, B. F., Co. (Drying).
Taylor & Fenn Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

**Dye House Cans.**
Hill, James, Mfg. Co.

**Dye House Trucks.**
Bailey, Frank.

**Dye Sticks.**
Bailey, Frank.
Haedrich, E. M.
Klauder-Weldon Dyeing Machine Co.

**Dye Tubs.**
——See Tanks, Tubs and Vats.

**Dyestuffs and Chemicals.**
American Dyewood Co.
Arabol Manufacturing Co.
Atteaux, F. E., & Co.
Badische Co.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Carbondale Calcium Co.
Cassella Color Co.
Danker & Marston.
Farbenfabriken of Elberfeld Co.
Kalle & Co.
Ford, J. B., Co.
Geisenheimer & Co.
Jamaica Dyewood & Chemical Co.
Johnson, Chas. A., & Co.
Klipstein, A., & Co.
Leyland, Thos., & Co.
Metz, H. A., & Co.
Read Holliday & Sons, Ltd.
Roessler & Hasslacher Chemical Co.
Sykes, Walter F., & Co.
Thayer, Ed. M., & Co.
Young, J. S., & Co., Ltd.

**Dynamos.**
——See Electric Lighting.

**Edgings.**
——See Tapes, Braids and Edgings.

**Electrical Construction.**
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Company.
Watson-Flagg Engineering Co.
Westinghouse Electric & Mfg. Co.

**Electrical Heating Devices.**
Crocker-Wheeler Co.
General Electric Co.

**Electric Driven Pumps.**
Dean Bros. Steam Pump Works.
General Electric Co.

**Electric Fans.**
American Blower Co.
Crocker-Wheeler Co.
General Electric Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sturtevant, B. F., Co.
Watson-Flagg Engineering Co.
Westinghouse Electric & Mfg. Co.

**Electric Hoists.**
Crocker-Wheeler Co.
General Electric Co.

**Electric Lighting.**
American Blower Co.
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

**Electric Motors.**
——See Motors (Electric).

**Electrolyzer.**
National Laundry Machinery Co.

**Elevators.**
Economy Engineering Co.
N. Y. Revolving Portable Elevator Co.
Salem Elevator Works.

**Embossing Machines.**
Cameron Machine Co.

**Employees' Time Recorders.**
Pettes & Randall Co.

**Engines.**
——See Steam Engines.

**Engine Repairs.**
Fishkill Landing Machine Co.

**Exhaust Heads.**
Sturtevant, B. F., Co.
Power Specialty Co.

**Fans—Exhaust and Ventilating.**
——See Ventilating Apparatus.

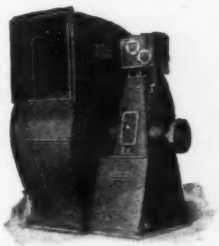
**Feed Water Heaters.**
Scaife, W. B., & Sons.

**Alphabetical Advertising Index, with page numbers, follows this list.**

# STURTEVANT
# Mechanical Draft

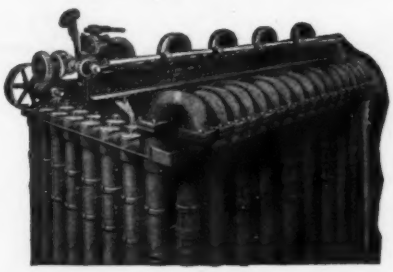
INCLUDES THE
MOST EFFICIENT
AND
MOST SATISFACTORY FAN

**STURTEVANT MOTORS and ENGINES are**



especially designed for fan driving; the sets are selected by our engineers to save power; they are just right in size and speed.

# Fuel Economizers



INCREASE PROFITS . . . . .
REDUCE POWER PLANT LABOR
REDUCE NUMBER OF BOILERS
INCREASE CAPACITY OF PLANT

MOST EFFICIENT WITH

**STURTEVANT MECHANICAL DRAFT . . . .**

**ALL JOINTS ARE METAL-TO-METAL**

*Let us send you Bulletin No. 158*

## B. F. Sturtevant Co., Boston, Mass.

**General Office and Works, Hyde Park, Mass.**

NEW YORK PHILADELPHIA CHICAGO CINCINNATI LONDON

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fan Blowers and Exhausters, Rotary Blowers and Exhausters; Steam Engines, Electric Motors and Steam Turbines; Pneumatic Separators, Fuel Economizers, Forges, Exhaust Heads, Steam Traps, etc.

**Feed Water Pumps.**
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.

**Feed Water Purifiers.**
Dodge Mfg. Co.
Scaife, W. B., & Sons.

**Feeds.**
—See Automatic Feeds.

**Feed Water Regulators.**
Berry Engineering Co.

**Felt Hardeners.**
Farrel Foundry and Machine Co.

**Felting Machinery.**
Farrel Foundry and Machine Co.

**Fender Boards.**
Case Bros.

**Filters.**
Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.

**Finishing Compounds.**
—See Sizings.

**Finishing Machinery.**
—See Dyeing, Drying, Bleaching and Finishing.

**Fire Brick.**
Borgner, Cyrus, Co.

**Fire Extinguishers.**
Badger, E. B., & Sons Co.

**Fire Hose.**
Eureka Fire Hose Co.

**Fire Hydrants.**
Norwood Engineering Co.

**Fire Insurance.**
Home Insurance Co.

**Fire Proof Doors and Windows.**
Badger, E. B., & Sons Co.

**Flax, Tow, Hemp and Jute Machinery.**
Fairbairn-Lawson-Combes-Barbour, Ltd.
Haskell-Dawes Machine Co.

**Fluted Rolls.**
Bates & Robinson Machine Co.
Hood, R. H., Company.
Leigh, Evan A.
Jefferson, Edward & Brother.
Riley, C. E., Company.
Thurston, A. G., & Son.

**Flyers.**
Bodden, Wm., & Son, Ltd.
Calder Machine Works.
Hall, F. A. & P.
Hopkins Machine Works.
Jefferson, Edward, & Brother.
Leigh, Evan A.
Speed & Stephenson.
Textile Machinery Co.

**Fly Wheels.**
Dodge Mfg. Co.

**Forges.**
Sturtevant, B. F., Co.

**Friction Clutches.**
—See Clutches.

**Friction Cones.**
Evans Friction Cone Co.

**Fuel.**
Darrow Mann Co.

**Fuel Economizers.**
Sturtevant, B. F., Co.

**Fulling Mills for Woolen Goods.**
Buhlmann, A. W.
Hopkins Machine Works.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
Rodney Hunt Mach. Co.

**Furnaces (Automatic Smokeless).**
Murphy Iron Works.

**Garnetts.**
Hunter, James, Machine Co.
Leigh, Evan A.
Smith & Furbush Machine Co.

**Gas Blowers and Exhausters.**
American Blower Co.
Sturtevant, B. F., Co.

**Gaskets (Superheated Steam).**
Power Specialty Co.

**Gauges.**
Crosby Steam Gage & Valve Co.
Walworth Manufacturing Co.

**Gears.**
Dodge Mfg. Co.
Farrel Foundry and Machine Co.
New Process Raw Hide Co.

**Gear Cutting.**
Farrel Foundry and Machine Co.

**Gear Cutting Machine.**
Whiton, The D. E., Co.

**Generating Sets.**
American Blower Co.
Buffalo Forge Co.
General Electric Co.
Sturtevant, B. F., Co.

**Geyser Water Heater.**
Sargent's Sons, C. G., Corp.

**Greases.**
N. Y. & N. J. Lubricant Co.

**Harness Twine.**
Moore, C., & Co.

**Harness and Frames.**
Steel Heddle Mfg. Co.
Garland Mfg. Co.

**Heating.**
—See Ventilating Apparatus.

**Heddles.**
Howard Bros. Mfg. Co.
Richards, Atkinson & Haserick.
Steel Heddle Mfg. Co.

**Hoisting Apparatus.**
Economy Engineering Co.

**Hosiery Boards.**
Pearson, J. T.
Philadelphia Drying Machinery Co.

**Hosiery Labels.**
Kaumagraph Company.

**Humidifying Apparatus.**
American Moistening Co.
Bell Pure Air & Cooling Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.
Fries, John W.
Parks, G. M., Co.
Schutte & Koerting Co.

**Hydraulic Rams.**
Power Specialty Co.
Walworth Mfg. Co.

**Hydro Extractors.**
American Laundry Mchy. Mfg. Co.
American Tool & Machine Co.
Broadbent, Thomas, & Sons.
Dienelt & Eisenhardt, Inc.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Schaum & Uhlinger.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

**Ice Machines.**
Remington Machine Co.

**Insulating and Braiding Silks.**
Sauquoit Silk Mfg. Co.

**Insurance (Casualty, Fire and for Loss of Profits).**
Home Insurance Co.

**Ironing Machines for Knit Goods.**
American Laundry Machinery Mfg. Co.

**Jacquards.**
Halton's, Thomas, Sons.

**Jacquard Cards.**
Case Bros., Inc.

**Knit Goods, Edgings, Trimmings, Etc.**
Chapin, Geo. W.
Charles, W. B.
Cheney Bros.
Friedberger-Aaron Mfg. Co.
Krout & Fite Mfg. Co.
Weimar Bros.

**Knit Goods, Finishing Machines Crochet, Etc.**
American Laundry Machinery Mfg. Co.
Hoffman, U. S.
Merrow Machine Co., The.
Nye & Tredick Co.
Scott & Williams.
Union Special Machine Co.

**Knitting Machine Cylinders.**
Paxton & O'Neill.
Stafford & Holt.

**Knitting Machinery.**
Ainsley Knitting Machine Co.
Boss Knitting Machine Co.
Brinton, H., & Co.
Claes & Flentje.
Climax Machine Co.
Cooper, Chas.
Crane Mfg. Co.
Epplers, John, Mach. Works.
Excelsior Knitting Machine Mfg. Co.
General Machine Works.
Gormly, Robt. W., & Co.
Grosser Knitting Machine Co.
Hemphill Mfg. Co.
Jenckes, E., Mfg. Co.
Lamb Knitting Mach. Mfg. Co.
Leckie, Jas., & Son.
Leighton Machine Co.
Mayo, Geo. D., Knitting Machine Co.
Mayo Knitting Machine & Needle Co.
National Automatic Knitter Co.
Nye & Tredick Co.
Paxton & O'Neill.
Scott & Williams.
Spindler, E. O.
Stafford & Holt.
Standard Machine Co.
Taylor, James.
Tompkins Bros. Co.
Walther, Otto.
Wildman Mfg. Co.

**Knitting Needles and Supplies.**
Breedon's, Wm., Sons.
Brinton, H., & Co.
Continental Latch Needle Company.
Cooper, Chas.
Corey, Wm., Co.
Crane Mfg. Co.
Dodge Needle Co.
Excelsior Needle Co.
Grosser Knitting Machine Co.
Ives, L. T., Co.
Lamb Knitting Machine Mfg. Co.
Keystone Latch Needle Co.
Mayo Knitting Machine & Needle Co.
Spindler, E. O.
Wardwell Needle Co.

**Labels.**
Kimball, A., Co.

**Lamps, Electric.**
Buckeye Electric Co.
Cooper Hewitt Electric Co.
General Electric Co.
Westinghouse Electric & Mfg. Co.

**Lockers.**
Williamson, W. S.

**Loom Pickers.**
Garland Mfg. Co.

**Looms.**
Crompton & Knowles Loom Works.
Draper Company.
Kilburn, Lincoln & Co.
Leigh, Evan A.
Lowell Machine Shop.
Mason Machine Works.
Richards, Atkinson & Haserick.
Stafford Co., The.
Whitin Machine Works.

**Loopers.**
Beattie Manufacturing Co.
Hepworth, John W., & Co.
Leighton Machine Co.

**Lubricants.**
Borne, Scrymser Co.
Dixon, Jos., Crucible Co.
N. Y. & N. J. Lubricant Co.

**Lubricators.**
Detroit Lubricator Co.
The United States Mica Co.
Scholler Bros.
Walworth Mfg. Co.

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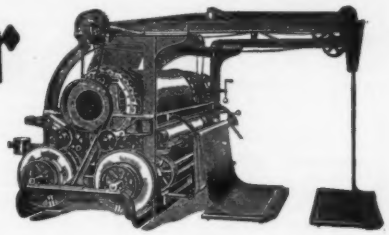
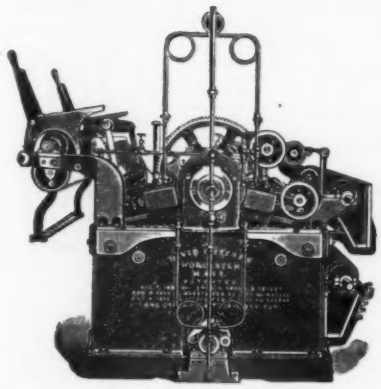
# David Gessner

## Worcester, Mass.

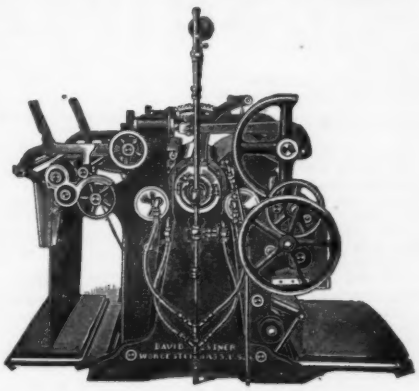




**Latest Improved Cloth Finishing Machinery**

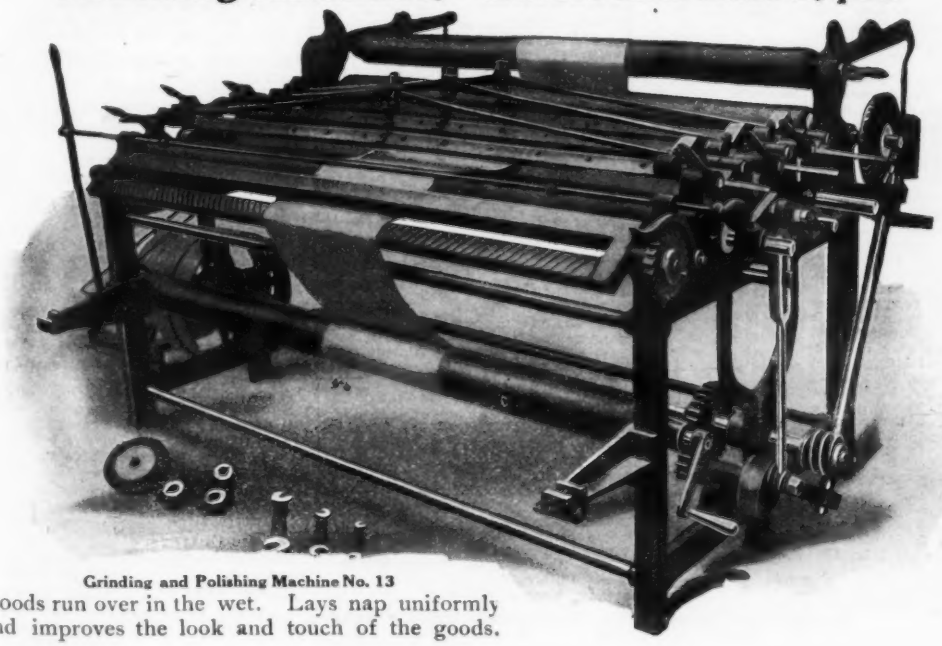
—

**Napping Machines and Presses a Specialty**



## Schuchardt & Schutte, 90 West St., New York

**Finishing Machinery—Latest and Best Types**



**Grinding and Polishing Machine No. 13**

Goods run over in the wet. Lays nap uniformly and improves the look and touch of the goods.

**Lumpers.**
Gerry, George, & Son.
Schofield, Wm., Co.

**Machine Designers.**
Adams, A. L.
Cameron Machine Co.

**Machinery Dealers.**
Jefferson, Ed., & Bro.
Schofield, Geo. L.
Speed & Stephenson.
Taylor, James.

**Machinists.**
Adams, A. L.
Calder Machine Works.
Cameron Machine Co.

**Machinists' Tools.**
Whiton, The D. E., Co.

**Mails.**
Walder, J.

**Marking Pots.**
Bradley, A. J.

**Marking Tickets.**
Kimball, A., Co.

**Measuring and Folding Machines.**
Curtis & Marble Machine Co.
Elliott & Hall.

**Mechanical Draft.**
American Blower Co.
Sirocco Engineering Co.
Sturtevant, B. F., Co.

**Mechanical Draughtsmen.**
Sturtevant, B. F., Co.
Cameron Machine Co.

**Mechanical Engineers.**
American Blower Co.
Dodge Mfg. Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

**Mechanical Stokers.**
American Ship Windlass Co.
Murphy Iron Works.

**Mercerizers.**
Globe Dye Works Co.
Home Bleach & Dye Works.
Lorimer, Wm. H., Sons Co.

**Mercerizing Machinery.**
Buhlmann, A. W.
Butterworth, H. W., & Sons.
Klauder-Weldon Dyeing Machine Co.
Schwartz, L. H. A., & Co.
Smith, Drum & Co.
Textile Finishing Machinery Co.

**Metallic Fire-proof Window Frames and Sashes.**
Badger, E. B., & Sons Co.

**Metallic Packing.**
Power Specialty Co.

**Mill Architects.**
——See Architects and Mill Engineers.

**Mill Builders and Engineers.**
Ferguson, John W.

**Mill Supplies.**
American Supply Co.
Bamford & Smith.
Buckley's, Benjamin, Sons.
Burnham, E. E., & Co.
Crabb, Wm., & Co.
Crosby Steam Gage and Valve Co.
Easton-Burnham Co.
Eureka Fire Hose Co.
Garland Mfg. Co.
Jefferson, Ed., & Bro.
Lane, W. T., & Bro.
Leigh, Evan A.
N. Y. & N. J. Lubricant Co.
Philadelphia Drying Machinery Co.
Pratt, R. C.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Richardson Bros.
Schierin, Chas. A., Co.
Shaw, Victor, Ring Traveler Co.
Speed & Stephenson.
Stephenson Mfg. Co.
Sweet & Doyle.
Thurston, A. G., & Son.
Turner Mfg. Co., J. S.
Vandegrift, Elias T.
Walworth Manufacturing Co.

**Motors (Electric).**
Crocker-Wheeler Co.
Diehl Manufacturing Co.
General Electric Co.
Sturtevant, B. F., Co.
Watson-Flagg Engineering Co.
Westinghouse Electric & Mfg. Co.

**Napping Machinery.**
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Cocker Machinery Co.
Curtis & Marble Machine Co.
Gessner, David.
Leigh, Evan A.
Parks & Woolson Machine Co.

**Noils (Silk).**
Ryle, Wm., & Co.

**Non-Fluid Oils.**
N. Y. & N. J. Lubricant Co.

**Oilless Bearings.**
Arguto Oilless Bearing Co.

**Oil Cups.**
Walworth Manufacturing Co.

**Oils.**
Borne, Scrymser Co.
Burckhardt & Co.
Harding, Fancourt & Scull.
New York & New Jersey Lubricant Co.
Scholler Bros.
Stephenson Mfg. Co.

**Oil Stencil and Press Board Paper.**
Bradley, A. J.

**Overseaming Machines.**
Merrow Machine Co.
Singer Sewing Machine Co.

**Packings (Metallic).**
Power Specialty Co.

**Paints.**
Brown, Chas. H., Paint Co.
U. S. Gutta Percha Paint Co.

**Paints (Wood Preserving).**
Carbolineum Co.

**Pantagraphs for Mill Engraving.**
Johnson, C. A., & Co.

**Paper.**
Merwin Paper Co.
Richardson Bros.

**Paper Boards.**
Merwin Paper Co.

**Paper and Cloth Slitters.**
Cameron Machine Co.

**Patent Solicitors.**
Crosby & Gregory.
Howson & Howson.

**Perforated Metals.**
Harrington & King Perforating Co.
Hopkins Machine Works.

**Peroxide of Sodium.**
Roessler & Hasslacher Chemical Co.

**Pipes and Fittings.**
Scaife, W. B., & Sons.
Walworth Manufacturing Co.

**Pneumatic Conveying.**
——See Ventilating.

**Portable Elevators.**
Economy Engineering Co.
N. Y. Revolving Portable Elevator Co.

**Power Transmission Machinery.**
Almond, T. W., Mfg. Co.
American Pulley Co.
Cell Drier Machine Co.
Cresson, Geo. V., Company.
Dodge Mfg. Co.
Evans, G. Frank.
Farrel Foundry and Machine Co.
Hunter, Jas., Machine Co.
Kilburn, Lincoln & Co.
Oneida Steel Pulley Co.
Philadelphia Drying Machinery Co.
Phillips Pressed Steel Pulley Works.
Reeves Pulley Co.
Saginaw Manufacturing Co.
Schofield, Wm., Co.
Sellers, William, & Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

**Preparatory Machinery (Cotton).**
Howard & Bullough Am. Machine Co.
Kitson Machine Co.
Leigh, Evan A.
Riley, C. E., Company.
Saco & Pettee Machine Shops.

**Preservatives.**
Carbolineum Wood Preserving Co.

**Presses.**
Boomer & Boschert Press Co.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Curtis & Marble Machine Co.
Dyeing & Finishing Machine Works.
Gessner, David.
Hart, Charles.
Hoffman, U. S., Co.
Hydraulic Press Mfg. Co.
Minnich Machine Works.
Phila. Drying Machinery Co.
Spence & Rideout.
Textile Finishing Machinery Co.
Woonsocket Machine & Press Co.

**Press Boards.**
Case Bros., Inc.

**Press Papers.**
Merwin Paper Co.
Philadelphia Drying Mchy. Co.
Richardson Brothers (Importers and Dealers).

**Pressure Regulators.**
Crosby Steam Gage & Valve Co.
Walworth Mfg. Co.

**Producer Gas Power Plants.**
Cameron Machine Co.

**Pulleys.**
——See Power Transmission Machinery.

**Pumps.**
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.
Lawrence Pump & Engine Co.
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

**Pump Governors.**
Crosby Steam Gage & Valve Co.
Dean Bros. Steam Pump Works.
Walworth Mfg. Co.

**Purifying & Filtration Plants.**
Dodge Mfg. Co.
Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.

**Quillers.**
Buhlmann, A. W.
Foster Machine Co.
Payne, G. W., & Co.
Universal Winding Co.

**Rag Pickers.**
Schofield, Wm., Co.
Smith & Furbush Machine Co.

**Raveling Machines.**
American Raveler Co.
Arguto Oilless Bearing Co.

**Raw Hide Gears.**
New Process Raw Hide Co.

**Reed and Harness Manufacturers.**
American Supply Co.
Nuttall, George.
Walder, J.

**Reducing Valves.**
Crosby Steam Gage & Valve Co.
Walworth Mfg. Co.

**Regulators (Pressure).**
Crosby Steam Gage & Valve Co.
Walworth Mfg. Co.

**Ribbon Cutters.**
Cameron Machine Co.

**Ribbons.**
Cheney Bros.

**Alphabetical Advertising Index, with page numbers, follows this list.**

**New Bedford Textile School**

Day and Evening Instruction in

Picking,
Carding,
Combing,
Spinning,
Warp Preparation,
Weaving,
Designing,
Knitting,
Chemistry
and Dyeing.

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**New Bedford Textile School**
**New Bedford, Mass.**

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We import a most complete and extensive line of **Cotton, Silk, Worsted and Fibre Machinery, Mill Supplies, Egyptian Cotton and Burlaps.** Representing the leading foreign manufacturers and dealers and keep thoroughly

**Atkinson**

up with the latest improvements in Textile Machines. We should be pleased to communicate with parties contemplating

**&**

any changes or additions in mill equipments and to send circulars describing at length our machines and supplies.

**Haserick**

**152-8 CONGRESS STREET, BOSTON**
**8 CURRER STREET, BRADFORD, ENG.**
**PHILADELPHIA OFFICE, THE ARCADE**



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Shaw, Victor, Ring Traveler Co.

**Roofing.**
Barrett Mfg. Co.

**Roll Coverers.**
Burnham, E. E., & Co.
Turner Mfg. Co., J. S.

**Rope.**
Dodge Mfg. Co.

**Rope Dressing and Preservative.**
Cling-Surface Co.

**Rope Transmission.**
Cresson, Geo. V., Company.
Dodge Mfg. Co.

**Roving Cans.**
Hill, James, Mfg. Co.
Standard Fibre Co.

**Roving Reels.**
Scott, Henry L., & Co.

**Sash Cord Braiders.**
Mason Mfg. Co.

**Scallop Machines.**
Merrow Machine Co.

**Schools.**
American School of Correspondence.
International Correspondence Schools.
Lowell Textile School.
New Bedford Textile School.
Philadelphia Textile School.

**Screens (Perforated Metal).**
Harrington & King Perforating Co.

**Secondhand Machinery.**
—See Mchry. Dealers, also classified Ads.

**Separators (Yarn).**
Draper Co., The.

**Sewing Machines and Supplies.**
American Raveler Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros., Somerville Machine Wks.
Curtis & Marble Machine Co.
Dinsmore Mfg. Co.
Fales, L. F.
Singer Sewing Machine Co.
Textile Finishing Machinery Co.
Tillinghast Sewing Mach. & Supply Co.
Union Special Machine Co.

**Shafting, Hangers, Etc.**
—See Power Transmission Machinery.

**Shearing Machinery.**
—See Dyeing, Drying, Bleaching and Finishing.

**Sheet Metal Work.**
Scaife, W. B., & Sons.

**Shell Rolls.**
Thurston, A. G., & Son.

**Shoddies.**
—See Wool Shoddies.

**Shuttles.**
—See Bobbins, Spools, Shuttles, Etc.

**Silk Machinery.**
Arlington Mch. Wks. (Arthur Birch, prop.)
Buhlmann, A. W.
Butterworth, H. W., Sons Co.
Leigh, Evan A.
Mason Machine Works.
Richards, Atkinson & Haserick.
Textile Finishing Machinery Co.

**Silk Mill Supplies.**
Hall, I. A., & Co.

**Silk Noils.**
Fawcett, Hughes.

**Singe Plates.**
Butterworth, H. W., Sons Co.
Taunton, New Bedford Copper Co.
Textile Finishing Machinery Co.

**Singeing Machines.**
Butterworth, H. W., Sons Co.
Curtis & Marble Machine Co.
Dyeing & Finishing Machine Works.
Electro-Textile Co.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Smith, Drum & Co.
Textile Finishing Machinery Co.

**Sizing, Starch and Gums.**
American Diamalt Co.
Arabol Mfg. Co.
Corn Products Refining Co.
Danker & Marston.
Scholler Bros.
Seydel Mfg. Co., The.

**Skylights.**
Van Noorden, E., Co.

**Slashers.**
Leigh, Evan A.
Lowell Machine Shop.
Riley, C. E., Company.

**Soaps.**
Dobbins Soap Mfg. Co.
Seydel Mfg. Co., The.

**Special Machine Designers.**
Cameron Machine Co.

**Spindles.**
Bamford & Smith.
Bodden, Wm. & Son, Ltd.
Buckley's, Benjamin, Sons.
Calder Machine Works.
Draper Company.
Easton-Burnham Co.
Hall, F. A. & P.
Hopkins Machine Works.
Jefferson, Edward & Brother.
Leigh, Evan A.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Vandegrift, Elias T.

**Spindle Tubes.**
Bamford & Smith.
Calder Machine Works.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Vandegrift, Elias T.

**Spinning Frame Saddles.**
Dixon Lubricating Saddle Co.


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**Spinning Rings.**
Draper Company.
Hall, F. A. & P.
Howard & Bullough American Machine Co.
Whitinsville Spinning Ring Co.

**Spinning Tubes.**
Buckley's, Benjamin, Sons.
Hall, F. A. & P.
Jefferson, Edward & Brother.

**Spools.**
—See Bobbins, Spools, Shuttles, Etc.

**Spoolers.**
Draper Company.
Easton & Burnham Machine Co.
Hall, F. A. & P.
Lindsay, Hyde & Co.
Lowell Machine Shop.
Payne, George W., & Co.

**Stacks.**
Scaife, W. B., & Sons.

**Staple Stitcher.**
Chas. Beck Paper Co.

**Steam Boilers.**
Scaife, W. B., & Sons.

**Steam Engines.**
American Blower Co.
Fishkill Landing Machine Co.
Providence Engineering Works.
Sturtevant, B. F., Co.
Textile Finishing Machinery Co.

**Steam Heating.**
American Blower Co.

**Steam Jacket Kettles.**
Badger, E. B., & Sons Co.

**Steam Pumps.**
Dean Bros. Steam Pump Works.
Goulds Manufacturing Co., The.
Walworth Mfg. Co.

**Steam Specialties.**
Berry Engineering Co.
Butterworth, H. W., Sons Co.
Crosby Steam Gage & Valve Co.
Sargent's Sons, C. G., Corp.
Sturtevant, B. F., Co.
Textile Finishing Machinery Co.
Walworth Manufacturing Co.

**Steam Traps.**
American Blower Co.
Sturtevant, B. F., Co.
Walworth Mfg. Co.

**Steam Turbines.**
General Electric Co.

**Steel Frame Construction.**
Scaife, W. B., & Sons.

**Steel Surfacing.**
Harrington & King Perforating Co.

**Stencil Machines.**
Bradley, A. J.

**Stokers (Automatic).**
American Ship Windlass Co.

**Stop Motion for Knitting Machines.**
Boss Knitting Machine Works.

**Stop Motion for Looms.**
—See Warp Stop Motions.

**Superheaters, Foster.**
Power Specialty Co.

**Tags.**
Kimball, A., Co.

**Tanks, Tubs and Vats.**
Cypress Lumber Co.
Hall, Amos H., Son & Co.
Hopkins Machine Works.
Klauder-Weldon Dyeing Machine Co.
New England Tank & Tower Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.
Scaife, W. B., & Sons.
Stearns, A. T., Lumber Co.
Woolford, G., Tank Mfg. Co.

**Tapes, Braids and Edgings.**
Barton, F. C.
Beacon Narrow Fabric Co.
Bias Narrow Fabric Co.
Chapin, George W.
Friedberger-Aaron Mfg. Co.
Industrial Mills Co.
Krout & Fite Mfg. Co.
Maurer, F. W., & Sons Co.
Weimar Bros.

**Telephones.**
Pettes & Randall Co.

**Temples.**
Draper Co.

**Textile Schools.**
—See Schools.

**Thread Guide.**
Palmer, I. E., Co.

**Tiering Machines.**
Economy Engineering Co.

**Top Cutting Machines.**
Wildman Mfg. Co.

**Trimming Machines.**
American Raveler Co.

**Trade Mark Stamps.**
Kaumagraph Co.

**Trucks.**
Bailey, Frank.

**Turbines.**
—See Water Wheels.

**Turning Points.**
Dickinson, T. L.

**Twine.**
Moore, C., & Co.
Richardson Bros.

**Twist Counters.**
Scott, Henry L., & Co.

**Twisting Machinery.**
Jefferson, Edward & Brother.
Lowell Machine Shop.
Smith & Furbush Machine Co.

**Valves.**
Crosby Steam Gage & Valve Co.
Jolly, J. & W.
Walworth Mfg. Co.

**Variable Speed Transmission.**
Cell Drier Machine Co.
Reeves Pulley Co.

**Ventilating Apparatus.**
American Blower Co.
American Moistening Co.
Berry, A Hun.
Carrier Air Conditioning Co. of America.
Crocker-Wheeler Co.
General Electric Co.
Parks, G. M., Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Tolhurst Machine Works.
Sargent's, C. G., Sons.
Schnitzler, Chas. H.
Schutte & Koerting Co.
Sirocco Engineering Co.
Sturtevant, B. F., Co.
Walworth Mfg. Co.

**Warp Beams (Steel).**
Mossberg, Frank, Co.

**Warp Beam Head.**
Sands Mfg. Co., T. J.

**Warpers.**
Draper Company.
Entwistle, T. C., Co.
Lowell Machine Shop.

**Warping and Beaming Machinery.**
Altemus, J. K.
Cocker Machinery Co.
Draper Company.
Entwistle, T. C., Co.
Oswald Lever Co.
Smith & Furbush Machine Co.

**Warp Stop Motions.**
American Textile Appliances Co.
Draper Company.
Kip-Armstrong Co.

**Warp Tension Regulator.**
Sands Mfg. Co., T. J.

**Washers (Cloth).**
American Laundry Mchy. Mfg. Co.
Arlington Mch. Works (Arthur Birch, prop.)
Birch, Arthur, Arlington Mch. Works.
Birch Bros., Somerville Machine Wks.
Butterworth, H. W., & Sons Co.
Hunt, Rodney, & Co.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

**Washing Soda.**
Ford, J. B., Co.

**Watchman's Clocks.**
Pettes & Randall Co.

**Water Chemists.**
Scaife, W. B., & Sons Co.

**Water Purifiers and Filters.**
Dodge Mfg. Co.
Hungerford & Terry.
Northern Water Softening Co.
Scaife, W. B., & Sons Co.

**Water Softeners.**
Dodge Mfg. Co.
Ford, J. B., Co.
Hungerford & Terry.
Northern Water Softening Co.
Scaife, W. B., & Sons Co.

**Water Towers.**
New England Tank & Tower Co.
Tippett & Wood.

**Water Wheel Governors.**
Woodward Governor Co.

**Water Wheel Harness.**
Dodge Mfg. Co.

**Water Wheels.**
Rodney Hunt Machine Co.
Smith, S. Morgan, Co.

**Winders (Cotton, Woolen and Worsted).**
Allen, A. W.
Altemus, J. K.
Easton & Burnham Machine Co.
Foster Machine Co.
Leigh, Evan A.
Lever, Oswald, Co
Lindsay, Hyde & Co.
Lowell Machine Shop
Payne, Geo. W., & Co.
Universal Winding Co.

**Winders (Back).**
Taylor, James.

**Winders (Hosiery).**
Altemus, Jacob K.
Easton & Burnham Machine Co.
Foster Machine Co.
Leighton Machine Co.
Lowell Machine Shop.
Payne, G. W., & Co.
Universal Winding Co.

**Wood Preserving Paints.**
Carbolineum Co.

**Wood Pulleys.**
Dodge Mfg. Co.
Saginaw Manufacturing Co.

**Wool.**
Richards, Atkinson & Haserick.
Schofield, Edwin F.

**Wool Cleaning Compound.**
Ford, J. B., Co.

**Wool Combing Machinery.**
Crompton & Knowles Loom Works.
Jefferson, Edward & Brother.
Leigh, Evan A.
Richards, Atkinson & Haserick.
Riley, C. E., Company.

**Wool Oil Compound.**
Burckhardt & Co.
Danker & Marston.

**Wool and Waste Dusters.**
Jefferson, Edward & Brother.
Leigh, Evan A.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Smith & Furbush Machine Co.

**Woolen and Worsted Machinery.**
Altemus, Jacob K.
American Tool & Machine Co.
Arlington Mch. Works (Arthur Birch, prop.)

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F. W. DEAN
**Mill Engineer and Architect**
Wm. W. Crosby
Special Textile Assistant

Designer of Textile and other mills, Water Power Plants, Steam and Electric Plants.
Expert Service in Valuations and Damage Suits.

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Boston, Mass.

Birch, Arthur, Arlington Mch. Works.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., Sons Co.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Fales, L. F.
Firth, William, Co.
Gessner, David.
Hood, R. H., Company.
Hunter, Jas., Machine Co.
Jefferson, Ed., & Bro.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Machine Co.
Leigh, Evan A.
Lombard Machine Co.
Lowell Machine Shop.
Parks & Woolson Machine Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Riley, C. E., Company.
Rodney Hunt Mach. Co.
Sargent's, C. G., Sons.
Schofield, Geo. L.
Schofield, William, Co.
Smith & Furbush Machine Co.
Speed & Stephenson.
Richards, Atkinson & Haserick.
Textile Finishing Machinery Co.
Tolhurst Machine Works.
Whittle, James H., Co.
Woonsocket Machine & Press Co.

**Wool Oils.**
Borne, Scrymser Co.
McKerrow, H. G., Co., Ltd.

**Wool Shoddies.**
Slack, Wm. H. H., & Bro.

**Wool Washing, Preparing and Drying Machinery.**
Hunter, Jas., Machine Co.
Jefferson, Edward, & Brother.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Riley, C. E., Company.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.
Speed & Stephenson.
Richards, Atkinson & Haserick.
Tolhurst Machine Works.

**Yarn Testers.**
Buhlmann, A. W.
Scott, Henry L., & Co.

## YARNS, THREADS, ETC.

**Banding.**
Sternberg, Fred, & Co.

**Cotton Yarns.**
Ballou Yarn Co.
Catlin & Co.
Chapin, Geo. W.
Charles, W. B.
Cone, T. H. S.
Crabb, Wm., & Co.
Devlin, Edward.
Eddy & Street.
Germania Dye Works.
Grant Yarn Co.
Greene & Daniels Mfg. Co.
Jenckes Spinning Co.
Johnson & Walker.
Littauer, Ludwig.
Mitchell, Jas. E., & Co.
Montgomery, J. R., Co.
Monument Mills.
Orswell Mills.
Salkeld, A. D., & Bro.
Sternberg, Fred, & Co.
Whitman, William, & Co.

**Flax, Hemp, Jute and Ramie.**
Duncan & Youngs.
Fawcett, Hughes.
Littauer, Ludwig.
Sternberg, Fred, & Co.

**Gassed Yarns.**
Ballou Yarn Co.
Greene & Daniels Mfg. Co.
Littauer, Ludwig.
Lorimer, E. D.
Queensbury Mills.
Sternberg, Fred, & Co.
Whitman, William, & Co.

**Glazed Yarns.**
Ballou Yarn Co.
Chapin, Geo. W.
Littauer, Ludwig.
Lorimer's, Wm. H., & Sons Co.
Orswell Mills.
Salkeld, A. D., & Bro.
Sternberg, Fred, & Co.
Whitman, William, & Co.

**Harness Twine.**
Ballou Yarn Co.
Fawcett, Hughes.
Moore, C., & Co.
Sternberg, Fred, & Co.

**Hosiery and Knitting Yarns.**
Boyer, B. F., Co.
Century Cotton Mills.
Chapin, George W.
Greene & Daniels Mfg. Co.
Hyde, E. S.
Littauer, Ludwig.
Jenckes Spinning Co.
Mitchell, James E., & Co.
Monument Mills.
Salkeld, A. D., & Bro.
Sternberg, Fred, & Co.
Whitman, William, & Co.

**Mercerized Yarns.**
Littauer, Ludwig.
Lorimer, E. D., & Co.
Montgomery, J. R., & Co.
Salkeld, A. D., & Bro.
Sternberg, Fred, & Co.
Whitman, William, & Co.

**Mohair Yarns.**
Littauer, Ludwig.
Montgomery, J. R., & Co.
Whitman, William, & Co.

**Novelty Yarns, Tinsels, Silk Noils, Etc.**
Jenckes Spinning Co.
Littauer, Ludwig
Montgomery, J. R., & Co.
Queensbury Mills
Sternberg, Fred, & Co.

**Silk Yarns.**
Chapin, Geo. W.
Cheney Bros.
Eddy & Street.
Ryle, Wm., & Co.
Sauquoit Silk Mfg. Co.

**Woolen and Merino Yarns.**
Boyer, B. F., Co.
Eaton Rapids Woolen Mills.
Eddy & Street.
Hyde, E. S.
Jenckes Spinning Co.
Littauer, Ludwig.
Salkeld, A. D., & Bro.

**Woolen Yarns.**
Littauer, Ludwig.

**Worsted Yarns.**
Boyer, B. F., Co.
Devlin, Edward.
Littauer, Ludwig.
Queensbury Mills.
Pocasset Worsted Co.
Salkeld, A. D., & Bro.
Whitman, William, & Co.

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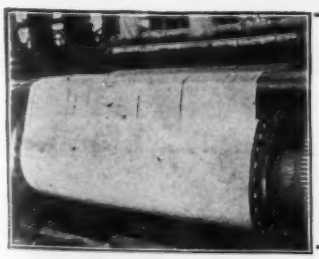

**THE AUTOMATIC LOOM BEAM HEAD**
can be tightened so as to hold itself in place without collars, set-screws or blocks nailed on the beam. It will tighten on beam and comes true in circle. Listing cannot get between the beam and head. Practically a one-piece head made strong and will outlast any beam head made, with the same usage. Can be set in one minute and stays when it is set. Put on without taking the beam apart. A set of beam heads sent to any factory in the U. S. upon application with thirty days approval. In ordering send diameter of beam and diameter of head wanted.
**The T. J. Sands Mfg. Co., - Winsooski, Vt.**

## Rice's Mill White Will Save a Coat of Paint

Rice's Mill White will give a better, light-reflecting finish, more lasting and economical, with two coats than can be had from three coats of lead and oil.

*AN OFFER—We will send one gallon of Rice's Mill White free to the owner of any mill who will pay the express thereon, and mention this publication.*

**U.S. Gutta-Percha Paint Co., Providence, R.I.**

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The only perfect method of attaching brand labels to stockings, or price and size tickets to all woven and knitted fabrics.

Uses an extremely fine wire giving a neat appearance.

Makes its own staples from a spool of wire costing a fraction of a cent per thousand.

The long, fine points penetrate the finest material without injury.

Turns the points back into the material leaving no roughness to catch or scratch.

Machines built for either foot or belt power.

Send samples of your work to be stitched, we will pay transportation both ways.

**Chas. Beck Paper Co., Ltd.**

**609 Chestnut Street, Phila., Pa.**

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Their range of application is so wide and varied that it would be almost impossible to cover them.

The great possibilities for saving money, time and trouble by the installation of these Pumps is a question worth looking into.

Tell us your requirements and we will be pleased to send recommendations for any service.

*Ask for Catalog No. 65.*

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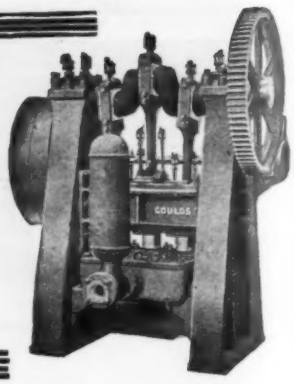

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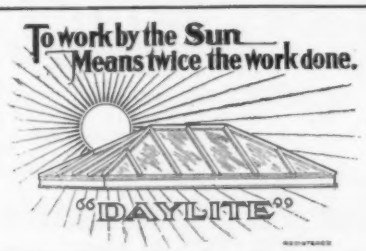


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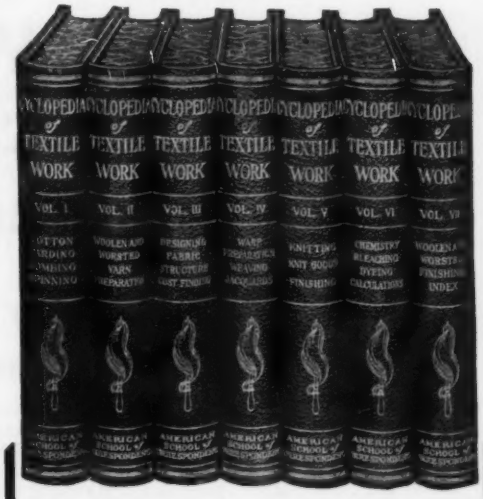


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(Tex. World Rec. 8-09.)

# YOU WANT IT

**If in the Textile Trade, or Catering to it You Really Need the New 1909-10 Edition of the**

# Official American Textile Directory

**Compiled by the Textile World Record**

## WHAT IT CONTAINS

**Over 13,000 Different Concerns Listed**

**A Complete Directory of Mills** including Cotton, Woolen, Knitting, Silk, Flax and Jute Mills of the United States, Canada and Mexico together with the Dyeing and Finishing Works, Bleacheries, Print Works and other Textile Establishments, about 7000 in all.

Full information is given about each mill in almost every instance, viz: the name of the company or firm, names of officers, agent, superintendent, the character of goods made, machinery equipment, i.e., the number of sets of cards (or combs), the number of spindles, number of looms; whether the mill uses steam or water power, whether there is a dyehouse or not, the names of the selling agents or if the mill sells direct, and in many instances the name of the man is given who buys the raw material and supplies. In this section of the Directory, all the mills in one place are arranged under the head of that town, but so designated by boldface letters, that the kind of mill is determined at a glance, so that a person, looking, for instance, only for woolen mills, can pick them out instantly. This system of arrangement is conceded to be the most convenient of any as it groups all the mills in one town together and is self-indexing, while at the same time those interested in a particular class of mills, such as cotton, silk or knit, can find them as easily as if they were classified separately.

**The Map Feature** was originated by the Textile World in 1894, and is copyrighted. There are 19 of these textile maps, which show only the cities and towns where there are textile establishments. 19 maps.

**An Alphabetical Index** to the textile establishments in the United States; about 7000.

**Mills with Worsted Machinery.** A separate list is compiled of mills with worsted machinery for the convenience of those dealing exclusively with that branch.

**The Yarn Trade Index.** In this department are classified lists of manufacturers of different kinds of yarn who spin for the market. It gives the size of yarn spun and the form in which the yarn is put up, together with the selling agents of the mills, or, if sell direct. About 900 names.

**Classified List of Manufacturers.** This is a new section in which all the manufacturers of textile fabrics are listed under suitable headings showing the classes of goods made.

**The Textile Mills in Mexico.** This feature of the American Textile Directory is continued and brought up to date by the latest information. About 300 mills.

**Commission and Order Section.** In this department are classified lists of establishments doing dyeing bleaching, printing, finishing and mercerizing on order, sub-divided according to the class of work done. About 500 names.

**Raw Material Section.** In this department are complete lists of dealers and brokers in wool, cotton, shoddy and extracts, and wholesale rag dealers. About 2200 names.

**Selling Agents and Dry Goods Commission Houses** in the principal cities of the Unifed States, giving the character of goods handled. About 2300 names.

**Textile Associations.** Owing to the growing number of inquiries for information of the various associations a list of all the textile associations in the United States and Canada has been included in this year's Directory. The names of assaociations, officers and addresses are given.

**Machinery and Supply Section.** This contains a carefully classified index of builders of textile machinery and dealers in mill supplies. About 800 names and 500 headings.

**Office Edition $3.00** **Travellers' Edition $2.00**

# Lord & Nagle Company

**Textile Publishers, 144 Congress St., Boston**

NEW YORK PHILADELPHIA CHICAGO

# Situations Wanted.

The following advertisements are a portion of those of superintendents and overseers, of whom full particulars are on file at this office. Manufactu ers who may be in need of such men may address them in care of Textile World Record, Boston or state their requirements directly, and the addresses of suitable men will be furnished without charge.

**Mr. C. T. Donlevy, a practical mill overseer and superintendent, who has a wide acquaintance with mill men, gives special attention to this department. He would be pleased to hear from any of his friends who may be interested. Address Textile World Record, 144 Congress St., Boston, Mass.**

## COTTON SUPERINTENDENTS.

**Manager or Superintendent;** worked on cotton mercerized and silk half hose, ladies' and children's hose; familiar with Acme, Victor, and Branson knitters; Wildman, Branson and Brinton ribbers; Hepworth and Beatty loopers; 25 years of age; good reference. 4499, Textile World Record, Boston, Mass.

**Agent or Superintendent** of a cotton mill; worked on drills, shirtings, sheetings, sateens, both warp and filling face; familiar with both American and English makes of machinery; will not go West, South or Canada; 47 years of age, married; good reference. 4470, Textile World Record, Boston, Mass.

**Superintendent of a Cotton Mill or** overseer of carding in a large mill. Worked on yarns of all kinds, combed and carded. Understands all makes of machinery. 29 years of age, married. Good reference. 4675, Textile World Record, Boston, Mass.

**Superintendent;** worked on lawns, dimities, lenos, checks, cam and dobby looms, huck, crash, Turkish towels, specialty on jacquard work, damask, portieres, satin and marseilles quilts, crochets, etc.; familiar with all makes of carding and spinning machinery, also C. & K. looms, Lewiston, Mason, K. & L., Draper's single and double left jacquards; understands bleaching and finishing; 40 years of age, married; good reference. 4351, Textile World Record, Boston, Mass.

**Superintendent** of a cotton mill; worked on plain cotton goods, automobile tire ducks, also yarns; familiar with all kinds of American and English makes of machinery; good reference; 47 years of age, married. 4179, Textile World Record, Boston, Mass.

**Superintendent of Cotton Yarn or weaving mill;** might consider a position as overseer of ring spinning, spooling, warping or slashing in large mill on stripes, checks, tickings, sheetings and lawns; all kinds of machinery; good reference; 35 years of age, married. 4696, Textile World Record, Boston, Mass.

**Superintendent** or carder or spinner in cotton or cotton waste mill; worked on white and colored cottons and cotton waste, wadding and garnett work; an expert on cotton spinning, woolen system; familiar with English and American makes of machinery; 41 years of age, married; good reference. 4318, Textile World Record, Boston, Mass.

## COTTON DESIGNERS.

**Designer or Assistant;** worked on worsted goods, rain cloths, ladies' dress goods, men's suitings, etc.; will not go to Pa., N. J., West, South or Canada; 23 years of age; good reference. 4377, Textile World Record, Boston, Mass.

**Designer or Overseer** of weaving; worked on cotton worsteds, resist worsteds, and all fancy yarn dyes, worsteds, also woolens, suitings, and overcoatings; will not go West, South or Canada; 30 years of age, married; good reference. 4329, Textile World Record, Boston, Mass.

**Assistant Designer;** worked on cotton and woolen goods; has a practical knowledge of what a loom can do; 40 years of age, married; good reference. 4278, Textile World Record, Boston, Mass.

## WOOLEN SUPERINTENDENTS.

**Superintendent;** worked on all kinds of high and low grade goods, woolens, worsteds, men's and ladies' wear; is practical from raw stock to the finished fabric; familiar with all kinds and makes of machinery; 38 years of age, married; good reference. 4709, Textile World Record, Boston, Mass.

**Superintendent of a Hosiery Mill;** has had a number of years of experience; also worked on woolen factories; 40 years of age; good reference. 4704, Textile World Record, Boston, Mass.

**Woolen** or worsted weaving mill superintendent; worked on cassimeres, cheviots, kerseys, silk mixtures, cotton warp, cotton and shoddy mixtures, worsted and cotton mixtures, cotton worsteds and worsteds; familiar with all kinds of machinery; will not go South, or Canada; 50 years of age, married; good reference. 4359, Textile World Record, Boston, Mass.

**Superintendent and Designer;** worked on worsteds, fancy cassimeres, worsted dress goods, thibets, overcoatings, kerseys and broadcloths; familiar with all kinds of machinery; will not go West, South or Canada; 47 years of age, married; good reference. 4232, Textile World Record, Boston, Mass.

**Superintendent,** boss weaver, designer, or both; worked on plain and fancy worsteds, woolen cassimeres, cheviots, overcoatings, kerseys, tourist cloth, and all kinds of ladies' dress goods; thoroughly understands and can fix all kinds of Crompton looms as well as the latest Knowles looms; will not go to Canada; 54 years of age, married; good reference. 4315, Textile World Record, Boston, Mass.

**Superintendent or Overseer;** worked on 188-200 needle plaited work; 128-160-176-188-200-220 needle, cotton, wool and mercerized hosiery; 240 needle ladies' hose; familiar with the E. Jenckes, Banner, and Geo. D. Mayo footers; H. Brinton, Scott & Williams ribbers, and loopers of different makes; 20 years of age; good reference. 4463, Textile World Record, Boston, Mass.

**Agent or Superintendent;** worked on nearly all kinds of woolens and some worsteds; familiar with nearly all makes of machinery; 53 years of age, married; good reference. 4459, Textile World Record, Boston, Mass.

## WOOLEN DESIGNERS.

**Designer, Designer and Asst. Supt.** or supt. in a small or medium mill; worked on woolens, dress goods, suitings, overcoatings, men's wear, of all kinds, and worsteds; will not go West, or South; 40 years of age, married; good reference. 4272, Textile World Record, Boston, Mass.

**Designer or Assistant;** worked on fancy worsteds, men's wear, dress goods, broad cloths and fancy woolens; familiar with all makes of machinery used in wool or worsted mills; 25 years of age, married; good reference. 4449, Textile World Record, Boston, Mass.

**Designer or Assistant;** might accept position as sewing machine fixer; worked on worsted and woolen cloth, blankets and flannels; 26 years of age. 4464, Textile World Record, Boston, Mass.

## WOOLEN CARDERS.

**Overseer of Carding;** worked on beavers, thibets, broadcloths, meltons, dress goods and hosiery yarns; familiar with D. & F., Smith, Furbush, Lombard, and almost all kinds of feeds; will not go to Pa., N. Y., N. J., West, South or Canada; 34 years of age; good reference. 3702, Textile World Record, Boston, Mass.

**Overseer of Carding** and ticking if required; worked on men's wear, flannels, dress goods, knitting, blanket and jacquard work; wool, shoddy, cotton and wool mixes; also cotton and silk mixes; familiar with the Lombard, Furbush, D. & F., English, Canadian cards, also various pickers; will not go South; 48 years of age, married; good reference. 4705, Textile World Record, Boston, Mass.

**Overseer of Carding** or carding and spinning; worked on all kinds of wool, cotton and shoddy mixes; has also had a great deal of experience on low stock; familiar with the Davis & Furber machines mostly; will not go to Pa., N. Y., N. J., West, South or Canada; 45 years of age, married. 4701, Textile World Record, Boston, Mass.

**Overseer of Woolen Carding;** worked on all kinds and grades from cotton warp shirting to fancy cassimeres and all wool dress goods, flannels, kerseys, broadcloths, etc.; familiar with all makes of machinery built in the U. S., including the Henderson card; 42 years of age, married; good reference. 4486, Textile World Record, Boston, Mass.

**Overseer of Carding or a good second hand job; worked on wool, shoddy and cotton mixes; familiar with the Bridesburg and Furbush cards, and the Barker rubbers; will not go to N. Y. or Canada; 28 years of age, married; good reference. 4303, Textile World Record, Boston, Mass.**

**Overseer of Woolen Carding;** worked on all grades of high and low stock; familiar with all kinds of cards; two sewers and a pattern weaver in the family; will not go to Me. or N. H.; 40 years of age, married; good reference. 4223, Textile World Record, Boston, Mass.

## COTTON CARDERS.

**Overseer of Weaving;** worked on plain and all kinds of fancy cottons; familiar with the C. & K., plain and box looms; Draper, Stafford automatic and all makes of plain looms used in the N. E. States; 35 years of age, married; will not go to Pa., or West; good reference. 4494, Textile World Record, Boston, Mass.

**Second Hand of Carding;** worked on sheetings, umbrella cloth, etc.; familiar with various makes of machinery; will not go to Me., N. H., Vt., Pa., N. Y., N. J., West, South or Canada; 50 years of age. 4495, Textile World Record, Boston, Mass.

**Overseer of Carding;** worked on fancy woolens, cotton, wool and shoddy mixes, overcoatings, various kinds of cotton warp goods, such as rain and covert cloth, satinets and unions; familiar with all American makes of cards; will not go West, South or Canada; 37 years of age, married; good reference. 4476, Textile World Record, Boston, Mass.

## WOOLEN DRESSERS.

**Boss Dresser** or second dresser in large mill; worked on all kinds of fancy woolens and cotton mixes; familiar with Davis & Furber makes of machinery; 35 years of age, married; will not go to Maine, Vermont, Pennsylvania, New York, New Jersey, West, South, or Canada; good reference. 4175, Textile World Record, Boston, Mass.

**Overseer of Dressing,** winding, spooling and twisting; experienced on all grades of men's wear, dress goods, in fancy piece dyes, resist piece dyes, rain and woolen cloth; familiar with Cleveland and Davis & Furber dressers; any make of spoolers, any kind of winders, and Altemus machines; will not go to Penn., N. J., West, South or Canada; 33 years of age, married; good reference. 4426, Textile World Record, Boston, Mass.

## COTTON DRESSERS.

**Overseer of Dressing,** spooling, slashing or twisting; worked on fancy worsteds, dress goods and piece dyes; familiar with all kinds of machinery on the market; will not go West, South, or Canada; 45 years of age, married; good reference. 4381, Textile World Record, Boston, Mass.

**Overseer of Dressing,** skein winding or spooling; worked on woolens, worsteds, cotton worsteds, or pure worsteds; familiar with any make of machinery; 31 years of age, married; good reference. 4369, Textile World Record, Boston, Mass.

## WOOLEN FINISHERS.

**Overseer of Woolen** or worsted finishing; worked on all classes except chinchillas; familiar with all American makes of machinery; will not go West, South or Canada; 40 years of age, married; good reference. 4491, Textile World Record, Boston, Mass.

**Overseer of Woolen** or worsted finishing; worked on all classes of goods; 41 years of age; familiar with all makes of machinery; good reference. 4492, Textile World Record, Boston, Mass.

**Overseer of Finishing;** worked on nearly all kinds of woolens, fancy and piece dye worsteds, dress goods, etc.; familiar with all kinds of woolen finishing machines; will not go West, South or Canada; prefers New England; 40 years of age, married; good reference. 3407, Textile World Record, Boston, Mass.

**Overseer of Woolen Finishing;** worked on all kinds of goods; familiar with all makes of machinery; will go anywhere for a good position, Mass. or Maine preferred; 45 years of age, married; good reference. 4708, Textile World Record, Boston, Mass.

**Overseer of Finishing;** worked on all classes of woolen and worsted goods; familiar with all makes of machinery; will not go South; 29 years of age, married; good reference. 4703, Textile World Record, Boston, Mass.

**Overseer of Finishing;** worked on woolens and worsteds; familiar with the Parks & Woolson shears and Gesner press; will not go to N. Y., West, South or Canada; will go to Philadelphia, but not to Pennsylvania; 36 years of age, married; good reference. 4480, Textile World Record, Boston, Mass.

## COTTON FINISHERS.

**Overseer of Finishing;** worked on men's wear, cloth, draperies and dress goods; familiar with American and German makes of machinery; will not go to Canada; 34 years of age, married; good reference. 4707, Textile World Record, Boston, Mass.

**Overseer of Finishing,** fulling or gigging, worked on face finished goods, meltons, kerseys, thibets, chinchillas, cheviots, serges, cassimeres, worsted casket cloths and cotton warp goods; all makes of machinery; good reference; 35 years of age, single. 4133, Textile World Record, Boston, Mass.

**Overseer of Finishing;** worked on cassimeres, kerseys, worsteds, dress goods, cotton mixes, etc.; familiar with all kinds of woolen finishing machinery; will not go West, South or Canada; 37 years of age, married; good reference. 4419, Textile World Record, Boston, Mass.

**Overseer of Finishing** in a small mill or second hand; worked on fine cassimeres, overcoatings, dress goods, meltons and worsteds; familiar with the Hunter, Parks & Woolson and Curtis & Marble shears and the Woonsocket press; will not go further South than Kentucky, North than Michigan, West than Kansas and East than Ohio; 37 years of age, married; good reference. 4264, Textile World Record, Boston, Mass.

# POSITIONS OPEN

We have a first-class position open for a man who understands the knitting of gloves and mittens, and who also understands sewing machines. Also a position as superintendent of a large mill manufacturing silk hose. Overseers of finishing in underwear and hosiery mills, and a combination man to fix knitting and sewing machines on underwear. For further information, address Registry Department, Textile World Record, 144 Congress St., Boston, Mass.

## KNITTERS.

**Overseer of Knitting** and finishing; worked on ladies' and misses' union suits, vests and pants also Swiss ribbed goods; familiar with Scott & Williams, Nye & Tredick and Wildman machines; will not go to Canada; 33 years of age, married; good reference. 4700, Textile World Record, Boston, Mass.

**Boss Knitter** or superintendent of small mill; worked on ladies', men's and children's cotton and worsted ribbed underwear, both latch and spring needle, also sweaters, plain and fancy stitch; familiar with S. & W., M. & W., S. & H., Snyder, Fisher, Leighton, Brinton, also Cooper and Crane spring needle machines; prefers the West or South; 27 years of age, married; good reference. 4479, Textile World Record, Boston, Mass.

**Overseer of Knitting;** worked on merino and cotton nets, elderdowns, jerseys, buffalo fur cloths, astrachans, glove linings and plain and vertical stripes; familiar with Tompkins, Campbell & Clute, Crane and Gormley machines; will not go South 39 years of age, married; good reference. 4313 Textile World Record, Boston, Mass.

**Superintendent or Overseer of Knitting;** worked on all classes of underwear; familiar with Cooper, Wildman, Scott & Williams, Nye & Tredick Tompkins, Crane, Campbell & Clute and all makes of sewing machines; will not go South or Canada 50 years of age, married; good reference. 4408 Textile World Record, Boston, Mass.

**Superintendent, Boss Knitter,** sewing machine fixer, or both; worked on sweaters, sweater coats, men's underwear, spring and latch needle, also ladies' underwear; familiar with all makes of knitting machinery; 42 years of age, married. 4413. Textile World Record, Boston, Mass.

**Overseer of Knitting;** worked on 14, 16, 18, 20 Georgia wool, heavy and light weights; 18, 20, 22, 24 Georgia fleece and 24, 26 Georgia balbriggans; familiar with all makes of machinery; will not go South or Canada; 36 years of age, married; good reference. 4421, Textile World Record, Boston, Mass.

**Boss Knitter;** worked on ribbed underwear gloves, mittens and leggins; familiar with the Lamb, Nye & Tredick, Wildman, Scott & Williams and Champion machines; married; good reference. 4288, Textile World Record, Boston, Mass.

## KNITTERS.

Open for position: Hosiery mill superintendent, A-1 man on seamless and full fashioned hosiery and sulphur colors, 15 years' experience, German, gilt edge reference, Philadelphia or South. B. T., Textile World Record, Boston, Mass.

**Knitting Machine Fixer** or second hand; worked on carded, combed and lisle yarns, 2 by 1 ribbed, 1 by 1 ribbed, ladies' and children's hose, men's seamless half hose, and fine gauge ribbed hosiery, Geo. D. Mayo knitted goods; familiar with Scott & Williams, Wildman, Hepworth loopers and seamers, Geo. D. Mayo full automatic knitter and Julius Kohler loopers; prefers Pa., N. Y., N. J., and West; 22 years of age; good reference. 4484, Textile World Record, Boston, Mass.

**Superintendent** of a knitting mill; worked on men's heavy weight ribbed goods mostly, also light weights, and women's wear; familiar with the Michael & Wildman, Nye & Tredick, Scott & Williams, and Fisher makes of machinery; also nappers and sewing machines to some extent; 39 years of age, married; good reference. 4382, Textile World Record, Boston, Mass.

**Overseer of Knitting;** worked on ladies' seamless hose, plain, fancy and ribbed top; familiar with the Acme, Scott & Williams, Hemphill, Banner and Standard makes of machinery; 24 years of age, married; good reference. 4368, Textile World Record, Boston, Mass.

**Overseer of Knitting or Fixer;** worked on high grade goods in plaited work, mercerized, silk, lisle, wool and cotton; familiar with the McMichael, Scott & Williams, and Nye & Tredick machines; will not go West, South, or Canada; prefers N. Y. State or Wis.; 31 years of age; good reference. 4371, Textile World Record, Boston, Mass.

**Superintendent of a Knitting** or cotton yarn mill; worked on underwear, sweaters, wool and cotton; familiar with the Davis & Furber, Dobson & Barlow, cotton system, making cotton and merino, on some machinery; 50 years of age; good reference. 4467, Textile World Record, Boston, Mass.

**Superintendent of Knitting,** or overseer of large knitting or seaming room; worked on nearly all kinds of knit goods; familiar with Crane's Twist Drill, Tompkins, Nye & Tredick, and several kinds of sewing machines used in a knitting mill; 40 years of age, married; good references; has had 25 years of constant experience in the knitting business. 4178, Textile World Record, Boston, Mass.

**Overseer** or assistant superintendent of hosiery knitting; have worked on all grades of work from coarse wool to the finest mercerized cotton; familiar with Standard, Acme, Mayo, Hemphill, Scott & Williams and Brinton makes of machines; 35 years of age, married; good reference. 4155, Textile World Record, Boston, Mass.

**Overseer of Hosiery Knitting** or superintendent; worked on cotton, worsted and all grades of wool; familiar with the Mayo, Jenks, Boss, Huse, Wildman, Scott & Williams and Boulton makes of machinery; will not go South; 44 years of age, married; good reference. 4361, Textile World Record, Boston, Mass.


# Cutting Machines

Every Textile Manufacturer has his own special problems. If these problems relate to cutting cloth, paper, felt, &c., in any way, shape or form we are always glad to volunteer our help in solving them.

61 Poplar Street
Brooklyn, N. Y.

**Cameron Machine Co.**

Special Textile
Machine Designers

## WOOLEN SPINNERS.

**Overseer of Woolen Spinning;** worked on wool, cotton, shoddy from the lowest stock to the best of wool; understands twisters and spoolers of all makes; familiar with the J. & B., D. & F., Smith Brothers, Bancroft, in fact any mule that is made; will not go to Vt., N. J., or Canada; 35 years of age, married; good reference. 4489, Textile World Record, Boston, Mass.

**Overseer of Woolen Spinning,** or charge of spoolers, twisters, etc.; worked on wool, cotton, shoddy, cotton waste, and other waste from 1/2 to 14 run first and second spinning; 2s to 10s in cotton waste; familiar with various makes of machinery; will not go to Me., N. H., Vt., or Canada; 32 years of age, married; good reference. 4493, Textile World Record, Boston, Mass.

**Overseer of Woolen Spinning,** spooling, winding and twisting; worked on all classes of wool, cotton and shoddy mixes and all kinds of double and twists; understands the D. & F., J. & B., Furbush, Paul or Woonsocket machines; will not go to Pa., N. J., West, South or Canada; 39 years of age, married; good reference. 4498, Textile World Record, Boston, Mass.

**Overseer of Spinning;** worked on all kinds of woolens; familiar with the Davis & Furber machines; will not go to Pa. or Canada; 46 years of age, married; good reference. 4466, Textile World Record, Boston, Mass.

**Overseer of Woolen Spinning;** worked on all kinds of woolen goods, fine and coarse yarns, from 5/8 to 10 and 11 run, also second spinning, all kinds of double of twist, and wool, cotton and shoddy mixes; familiar with Davis & Furber mules; will not go to Pa., N. Y., N. J., West, South or Canada; 33 years of age, married; good reference. 4435, Textile World Record, Boston, Mass.

**Overseer of Spinning;** worked on woolens, cassimeres and dress goods; familiar with Davis & Furber, and Johnson & Bassett mules; 40 years of age, married; good reference. 4433, Textile World Record, Boston, Mass.

## COTTON SPINNERS.

**Overseer of Spinning** or general second hand worked on all kinds of cotton goods; familiar with most any frame in spinning; 32 years of age, married; good reference. 4496, Textile World Record, Boston, Mass.

**Overseer of Spinning,** spooling, warping, ring or mule spinning or second hand; worked on sheetings, shirtings, cottonades, denims, and fancies; familiar with all kinds of spinning frames, spoolers and warpers; will not go to N. H., N. Y., or N. J.; 47 years of age, married; good reference. 3910, Textile World Record, Boston, Mass.

**Overseer or Second Hand** of spinning room; worked on yarns from 3s to 90s; familiar with Platt Brothers, Hopedale, Brooks, spoolers and warpers; will not go West or South; 38 years of age, married; good reference. 4473, Textile World Record, Boston, Mass.

**Overseer of Spinning,** winding, warping, quilling and spooling; worked on warp and filling yarn for fine dress goods, also hosiery yarn; familiar with the Lowell, Whitin, Mason, Universal, Camless, long chain, Draper, and Lowell spoolers; 30 years of age; good reference. 4483, Textile World Record, Boston, Mass.

**Overseer Worsted Spinning,** twisting and reeling or carding, combing and drawing. Worked on botany crossbred wools and mixes, also fancy yarns, on Prince & Smith, Hall & Stell, Lowell, Taylor, Wordsworth & Co. machines; 35 years of age, married, good reference. 4699 Textile World Record, Boston, Mass.

**Overseer of Spinning** or good second hand position; worked on all kinds of goods, including knit goods; familiar with Davis & Furber and Johnson & Bassett mules; will not go West, South, Canada, Pa., N. J.; 28 years of age, married; good reference. 4434, Textile World Record, Boston, Mass.

## WOOLEN WEAVERS.

**Overseer of Weaving,** or good loom fixing position; worked on cotton and woolen blankets, satinets and unions; familiar with the Crompton, Gilmore, Crompton & Knowles looms, twill, box and other attachments; will not go to Canada; 25 years of age, married; good reference. 4471, Textile World Record, Boston, Mass.

**Overseer of Weaving** or assistant superintendent; worked on kerseys, overcoatings, tricot, diagonal crepe, woolen and worsted goods of all kinds, uniform and carriage cloths; familiar with the Crompton, Knowles and Gilbert looms; will not go to Canada; 45 years of age, married; good reference. 4472, Textile World Record, Boston, Mass.

**Overseer of Weaving;** worked on all grades of woolens and worsteds; familiar with the Crompton & Knowles looms; will not go West or to Canada; 38 years of age, married; good reference. 3687, Textile World Record, Boston, Mass.

**Overseer of Weaving;** worked on woolens and worsteds, all grades for men's wear and dress goods; familiar with Crompton & Knowles looms, electric stop motion, Draper magazine; will not go West, South or Canada; 40 years of age, married; good reference. 4457, Textie World Record, Boston, Mass.

**Overseer of Weaving;** worked on worsteds and all kinds of fancy woolens; will not go to Vermont, West, South or Canada; familiar with Crompton, Knowles and Thayer looms; 33 years of age; good reference. 4454, Textile World Record, Boston, Mass.

**Boss Weaver,** spooler and slasher, or both; designer, asst. supt. or supt. of a small mill; worked on all kinds of plain goods, both coarse and fine, up to 120s and 200s filling, dobbies, jacquards, etc.; familiar with all makes of machinery, slashers, warpers and spoolers; 39 years of age, married; good reference. 4458, Textile World Record, Boston, Mass.

## COTTON WEAVERS.

**Overseer of Weaving** in cotton or linen mill; worked on fine linen damask and towels, napkins, huckabuck towels, dress linens, crash, union goods in variety, glass cloths, etc.; familiar with various makes of machinery; 27 years of age; good reference. 4490, Textile World Record, Boston, Mass.

**Overseer of Cotton Weaving;** worked on sheetings, print goods and all kinds of plain cotton goods; familiar with the Whitin, Lowell and Draper machines; will not go to Me. or Canada; 43 years of age, married; good reference. 4487, Textile World Record, Boston, Mass.

**Overseer of Weaving,** cloth room or dressing, weaving preferred; worked on fine and coarse, white and colored work; familiar with the Crompton, Lowell, Whitin and Mason machines; will not go West; 52 years of age, married; good reference. 4441, Textile World Record, Boston, Mass.

**Overseer of Weaving;** worked on fancy shirtings, lenos, ginghams, fancy silk ginghams, linen goods, vestings and men's and ladies' suitings, in worsted and cotton; familiar with Crompton & Knowles looms; good reference; 48 years of age, widower. 4248, Textile World Record, Boston, Mass.

**Overseer of Weaving** in a ribbon, tape or webbing mill; a man of 15 years experience, now with a large mill; A1 mechanic, and has had a large experience on all kinds of narrow fabric looms; steady habits; good record; prefers N. E. States, but would go to N. Y. or Pa. if place was reliable; 42 years of age, married. 4283, Textile World Record, Boston, Mass.

**Overseer of Weaving.** Worked on plain and fancy white and colored goods, checks, shirtings, sheetings, lawns, duck, silk and cotton goods; good reference, 40 years of age, married, all kinds of looms. 4108 Textile World Record, Boston, Mass.

## DYERS.

**Boss dyer;** 33 years old; experienced on dyeing and fulling of felts of every description, also blankets, flannels, woolens and in scouring, bleaching and carbonizing; overseer ten years; excellent references; will go anywhere, at once. 3911, Textile World Record, Boston, Mass.

**Second Hand** or overseer of dyeing; worked on cotton flannels, domets and drills; familiar with all makes of machinery as far as bleaching and dyeing of cotton piece goods goes; prefers North; 24 years of age; good reference. 4702, Textile World Record, Boston, Mass.

**Overseer of Dyeing;** worked on piece dye worsteds, unions, any kind in fact, worsted and woolen yarns, raw stock, wool, cotton, unions silk, also slubbing in tops; familiar with the Klauder, Weldon and Obermayer for tops dyeing; will not go West, or South; 37 years of age, married; good reference. 4474, Textile World Record, Boston Mass.

**Overseer of Dyeing** or second hand in large mill; worked on woolens, cotton worsteds, unions, raw stock, yarn and piece goods; familiar with Klauder, Weldon and Delehanty makes of machines; will not go to Me., N. H., or Vt.; Middle West preferred; 27 years of age; good reference. 4475, Textile World Record, Boston, Mass.

**Overseer in Small Dye House,** or second hand in large; worked on cotton and woolen yarns; will not go to Canada; 35 years of age, married; good reference. 4477, Textile World Record, Boston, Mass.

**Overseer of Dyeing;** worked on denims, light and dark shades, awnings, checks, tickings, stripes, suiting and plaids with indigo (synthetic) and cotton warps; familiar with various makes of machinery; will not go West or to Canada; prefers N. E.; 27 years of age; good reference. 4481, Textile World Record, Boston, Mass.

**Second Hand in Dye House** or chemist in mill; worked on cotton piece goods, mercerized and not mercerized, lawns, in fact all kinds of cotton piece goods; 27 years of age. 4482, Textile World Record, Boston, Mass.

**Overseer of Woolen Dyeing;** worked on all kinds of goods; familiar with all makes of machinery; will not go to Pa., N. Y., N. J., West, South or Canada; 45 years of age, married; good reference. 4485, Textile World Record, Boston, Mass.

**Overseer of Dyeing** or second hand; worked on all kinds of woolens and worsteds, piece dyes, raw stock, in fact all classes of goods, in the woolen line; familiar with most all kinds of machinery; will not go West, South, or Canada; 43 years of age, married; good reference. 4374, Textile World Record, Boston, Mass.

**Overseer of Dyeing;** worked on unions of all grades, broad, casket and carriage cloths, flannels, overcoatings, ladies' dress goods, etc.; prefers acid and union colors in a small mill, up to 10 sets of cards; 24 years of age; good reference. 4393, Textile World Record, Boston, Mass.

A Shuttle

Don't move in the same old rut all your life without ever advancing to better work or better salary. You can secure in your own home, in your spare time, and without leaving your present work, the most powerful force for promotion in the world. Thousands have obtained increased earnings through the I. C. S. Write us a postal today, stating the position you would like to obtain. Advice of experts and booklet free.

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**Box 882, Scranton, Pa.**


## BLEACHERS AND DYERS.

**Overseer of Dyeing** and bleaching; worked on wool and worsted yarn, piece goods, raw cotton, knit cloth, carpet yarns, bleaching of cotton, also cotton and wool with peroxide; familiar with the Klauder & Weldon and Rodney & Hunt makes of machinery; will not go South or Canada; good reference; 37 years of age, married. 4384, Textile World Record, Boston, Mass.

**Overseer of Bleaching** or dyeing; worked on cotton knit goods, underwear, hosiery, hosiery yarns, raw stock, making a specialty of dyeing developed and aniline blacks on stockings; familiar with Klauder & Weldon, piece dyeing, skein yarn and raw stock machines. Delehanty's garment, raw stock and oxidizing machines, and the Swartz German machine on sulphur colors; will not go West, South or Canada; 26 years of age, American; good reference. 4321, Textile World Record, Boston, Mass.

## WORSTED MILL OVERSEERS.

**Overseer of Woolen** or worsted weaving. Worked on worsteds, cotton worsteds, woolens and dress goods. Crompton & Knowles looms. Will not go West, South or Canada. Good reference. 46 years of age, married. 4642, Textile World Record, Boston, Mass.

**Overseer of Woolen or Worsted Weaving.** Worked on woolen dress goods, men's wear, cotton worsteds and fancy worsteds on Crompton & Knowles looms, good reference. 35 years of age, married. 4698 Textile World Record, Boston, Mass.

## MASTER MECHANICS.

**Mechanical Superintendent,** master mechanic or chief engineer; familiar with all makes of machinery; will not go to West, South or Canada; 38 years of age, married; good reference. 4706, Textile World Record, Boston, Mass.

**Master Mechanic;** familiar with all kinds of machinery; 37 years of age, married; good reference. 4322, Textile World Record, Boston, Mass.

**Master Mechanic or Millwright;** worked on all kinds of machinery used in woolen, worsted or cotton mills; will not go to Penn., N. Y., N. J., West, South or Canada; 35 years of age, married; good reference. 4402, Textile World Record, Boston, Mass.

## MISCELLANEOUS.

**Sewing Machine Fixer;** worked on balbriggans and white tops; familiar with the Wilcox & Gibbs, Merrow, Union Special, etc.; prefers Mass. or R. I.; 20 years of age; good reference. 4488, Textile World Record, Boston, Mass.

**Loom Fixer;** worked on all classes of woolen goods; familiar with Crompton & Knowles looms, but would prefer Knowles looms; will not go to N. H., Vt., Pa., N. Y., N. J., West, South or Canada; 48 years of age, married; good reference. 4497, Textile World Record, Boston, Mass.

**Foreman or Fixer** in a hosiery mill; worked on ladies' half hose; familiar with the Geo. D. Mayo Acme, Hepworth, loopers, Wildman and Brinton ribbers and sewing machines; will not go to Mass., R. I., Conn., Me., N. H., Vt., N. Y., N. J., West or Canada; good reference. 4469, Textile World Record, Boston, Mass.

**Loom Fixer;** worked on worsteds; familiar with Crompton & Knowles looms; will not go to Me., N. H., Vt., Penn., West, South or Canada; 35 years of age, married; good reference. 4432, Textile World Record, Boston, Mass.

# There is But One

## Wyandotte Textile Soda

This truth is becoming each day more and more an established fact in the mind of every mill man. Why is it?

The question admits of but one answer.

It produces results which they desire. Is this article producing such results for you? If not, why not? Every package of the genuine contains a card like the cut here shown.

**Order from your supply house or write us for further information.**

---

## The J. B. FORD CO., Sole Mnfrs.

### Wyandotte, Mich., U. S. A.

**"Wyandotte" has been awarded the highest prize wherever exhibited.**

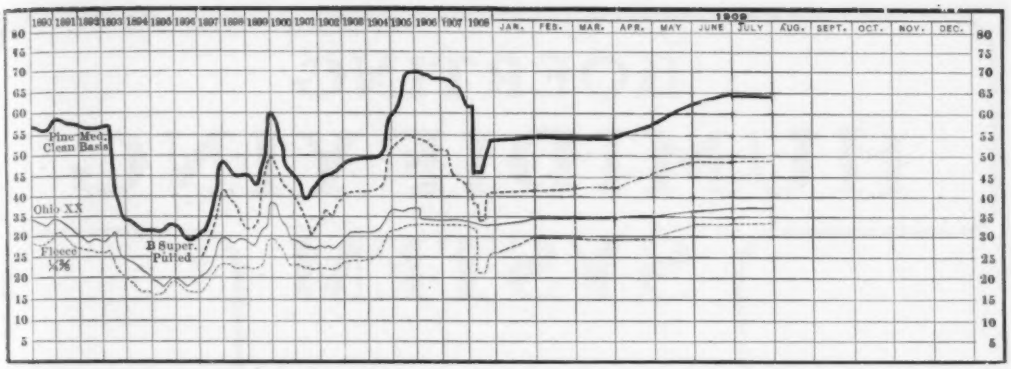



CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

## The Wool Market.

There is comparatively little new business being done in the wool market, the transactions being mainly confined to the shipments and invoicing of wool sold some time ago. Prices are higher and firmer, and manufacturers forced to buy wool to cover their orders for goods, find the estimated manufacturing profits disappearing by reason of the increased cost of raw material. Foreign wool markets are firm at the advanced prices, and the seller of wool finds conditions in his favor both in this country and abroad. Wool is a very speculative commodity, and predictions as to the future involve so many elements of uncertainty as to make them a very unsafe guide, no matter how well informed one may be as to present conditions. Several important factors tend to a continuance of the present situation in wool. The revival of business and prospect of continued improvement are among these. Then there is the stationary condition of the domestic wool clip and the certainty that the tariff on wool will remain as it is, at least for several years. The high prices will undoubtedly stimulate the use of cotton and wool substitutes, which will prevent the excessive wool values that would otherwise prevail under existing conditions of supply and demand.

Pennsylvania, Philadelphia. A fire of considerable dimensions recently destroyed the carbonizing department of the Karl Schlatter Dye Works at Ontario, Hartville and Rorer Sts., with an estimated loss of about $30,000. The company, who are dyers of hosiery and plain and mercerized yarns, will commence repairing the damaged portions of the plant at once.

Pennsylvania, Philadelphia. A fire caused by a toy balloon dropping on the building occupied by Charles Devlin, 3219 Kensington Ave., manufacturer of shoddies, waste, etc., damaged the plant to the extent of several thousands of dollars and for a time threatened to wipe it out of existence.

**INVESTIGATE** THE ONE DYEING MACHINE THAT DOES PERFECT WORK

# The Delahunty

Circulating type of machine for Bleaching Rawstock, Yarns and Warps, Dyeing the Vat Colors, Sulphurs, Indanthrines, Ciba, and Algol Dyes will prove to you, as it has proven to others, that it is the only machine that does perfect work.

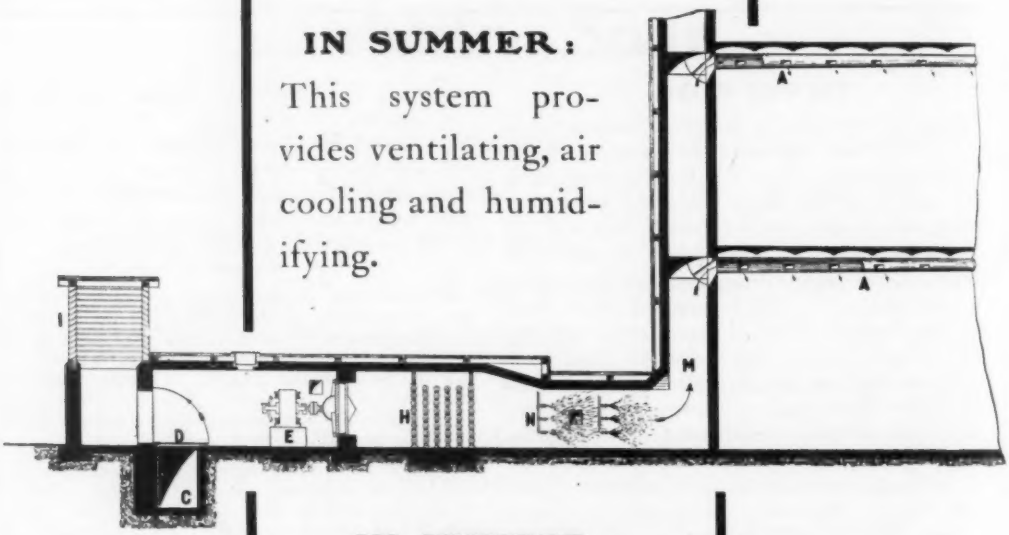
**DELAHUNTY DYEING MACHINE CO.**

**General Office, Pittston, Pa.** **Southern Agents, Alexander and Garsed.**

# KOERTING HUMIDIFYING SYSTEM

**IN SUMMER:**

This system provides ventilating, air cooling and humidifying.




**IN WINTER:**

This system provides ventilating, heating and humidifying.

Perfect Humidifying; Low Operating expense.

*Write for Catalog 6-H.H.*

**SCHUTTE & KOERTING CO.**

**12th and Thompson Sts., Philadelphia, Pa.**

New York, 50 Church Street
Boston, 98 High Street

Chicago, Security Building
Pittsburg, Keenan Building

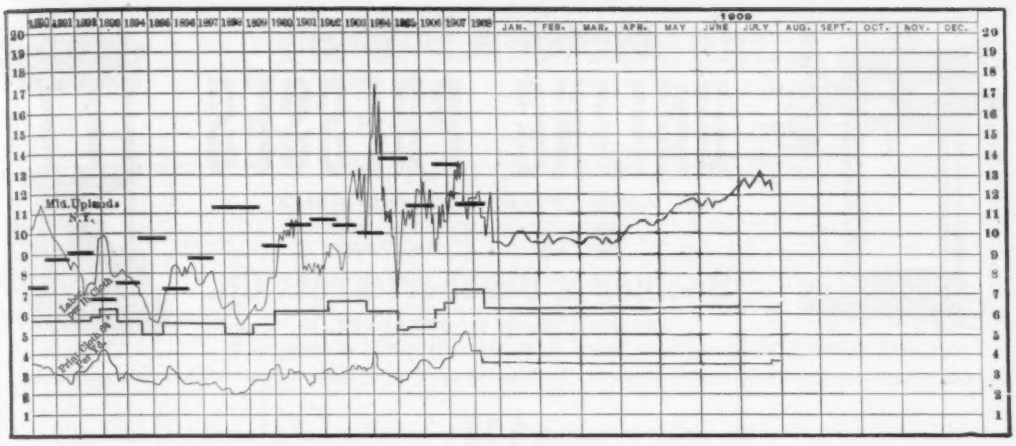



CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.
*The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.*

## The Cotton Market.

The prospect, daily approaching a certainty, that the cotton crop will be small, joining with the even better prospect of an increased consumption due to the improvement in business, has put up prices to the levels shown on our chart. The short time in foreign mills has as yet had no appreciable effect on the market. The trade look on it as the effect of high prices and not as the probable cause of low prices. The movement into sight from September 1 to July 23 is estimated by the "Chronicle" for a series of years as follows:

| | | |
|---|---|---|
| 1908-09, July 23 | ..... | 13,331,611 bales. |
| 1907-08, July 24 | ..... | 11,202,511 bales. |
| 1906-07, July 26 | ..... | 13,229,879 bales. |
| 1905-06, July 27 | ..... | 10,834,325 bales. |
| 1904-05, July 28 | ..... | 13,148,997 bales. |
| 1903-04, July 29 | ..... | 10,015,460 bales. |

The world's visible supply on July 23 is estimated by the same authority at 2,640,269 bales, as compared with 2,133,543 bales on same date in 1908, 2,955,546 bales in 1907, and 2,380,631 bales in 1906.

*Massachusetts, Peabody. It is probable the Naumkeag Steam Cotton Co. of Salem will continue the Danvers Bleachery & Dye Works, which was sold to them by Grant Walker, under the same name. For the present there will be no change.

## FACTS AND GOSSIP.

Pennsylvania, Philadelphia. The manufacturing building at the corner of 10th and Norris Sts., recently purchased by Henry Nelke, proprietor of the Elk Knitting Mills, manufacturers of women's and children's ribbed underwear, will be remodeled and put in first class condition for manufacturing purposes. Mr. Nelke cannot state at present whether he will lease it to other parties or remove his plant now in the Fretz Bldg., 10th and Diamond Sts., to this new location.

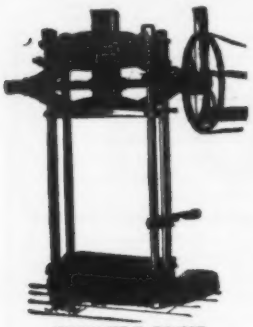
Pennsylvania, Philadelphia. Rowland Hunt, manufacturer of fine gauge full fashioned hosiery on 12 full fashioned machines, at Collins and Westmoreland Sts., has recently put out a line of silk hosiery for which he has received an order for 700 dozens per month.

Pennsylvania, Philadelphia. The Cambria Silk Knitting Mills, recently started up in this city on fine silk full fashioned hosiery, are very busy, having recently received an order for 10,000 dozens of their goods. They sell through Arthur Wood, 256 Church St., New York.

Vermont, Bennington. The knitting plant of George Rockwood & Co., which has been shut down for several days to allow of repairs being made, has resumed manufacturing.

Virginia, Roanoke. E. F. O'Brien, formerly secretary and treasurer of the bankrupt Roanoke Knitting Mills, has purchased the plant and has also taken an option on a building in the colored settlement, planning to begin manufacturing as soon as capital can be interested.

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes,
SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES.
Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.



KNUCKLE JOINT.

BOOMER & BOSCHERT

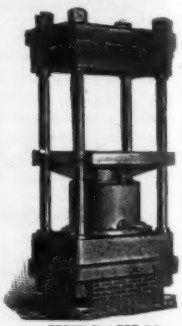
# BALING PRESSES

ARE THE STANDARD

Hydraulic or Knuckle Joint
Any Size .. Any Power

## Boomer & Boschert Press Co.

338 West Water S., SYRACUSE, N. Y.
Southern Agent, A. H. WASHBURN, Charlotte, N. C.



HYDRAULIC.

All

# Loom Harness

makers have Different methods. No two manufacturers make their loom harnesses in identically the same manner, for each one has his own peculiar methods which produce a harness different from that of any other manufacturer. Our harnesses possess features which are characteristic of no other,—features which make them as nearly perfect in weaving and wearing qualities as it is possible for loom harness to be made.

TRADE MARK

## GARLAND MFG. CO.

SACO, MAINE.

Formerly Loom Picker Co., Biddeford, Maine.

Your Safety Depends on the Efficiency and Strength of Your Valve.
BETTER BE SAFE THAN SORRY.

Water-Relief Valve

BUY CROSBY STEAM APPLIANCES WHICH ARE RELIABLE

WRITE FOR CATALOGUE.
Steam Engine Indicators
Recording Gages
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Brandon Rubber Pump Valves
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Lubricators
Pressure and Vacuum Gages
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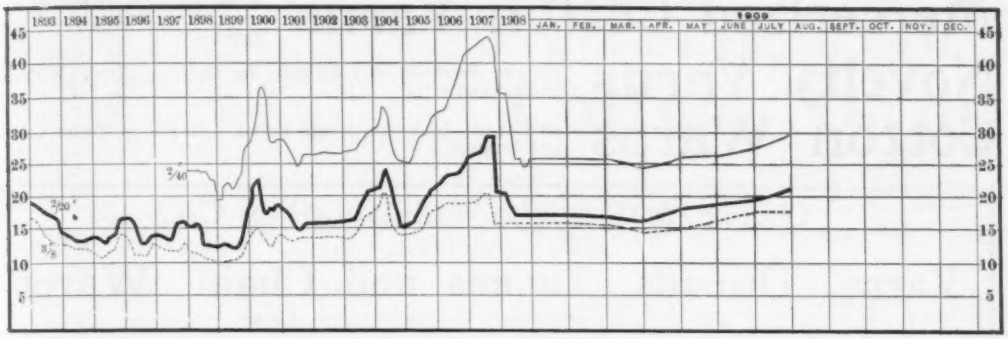
ENGINE-BOILER AND MILL SUPPLIES

Pop Safety Valve

CROSBY STEAM GAGE AND VALVE CO.

Stores, BOSTON, NEW YORK, CHICAGO, LONDON.
Office and Works, BOSTON, MASS.

# Yarn Department.




GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

## The Cotton Yarn Market.

There has been a steady hardening of prices on cotton yarns during the past month. Cotton has maintained most of its advance and the prospects are for high cotton during the balance of the summer. The new crop will probably open up at around 12 cents. While the demand for yarn at present prices is not very strong, there are some orders being placed.

Spinners who are unfortunately situated on cotton are shutting down on account of being unable to spin cotton profitably at its present value. In fact, the margin for spinners today is no better than it has been during the past year, and any improvement in the demand for yarn will surely result in a better working margin for spinners.

Prices are about as follows:

Eastern Cops.

| | |
|---|---|
| 6s | 20 |
| 8s | 20¼ |
| 10s | 20¾ |
| 14s | 21¾ |
| 16s | 22¼ |
| 18s | 22¾ |
| 20s | 23¼ |
| 22s | 23¾ |
| 24s | 24¼ |
| 26s | 24¾ |
| 30s | 25½ |
| 34s | 26½ |
| 36s | 27½ |
| 40s | 28½ |

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler.

| | |
|---|---|
| 12s | 22 |
| 14s | 22½ |
| 18s | 23 |
| 20s | 24 |
| 24s | 25 |
| 26s | 26 |
| 30s | 27 |
| 36s | 30 |
| 40s | 32 |
| 45s | 36 |
| 50s | 40 |
| 55s | 44 |
| 60s | 48 |

Eastern Two-Ply Warps, Carded Peeler.

| | |
|---|---|
| 2/30s | 27 |
| 2/36s | 30 |
| 2/40s | 32 |
| 2/45s | 36 |
| 2/50s | 40 |
| 2/60s | 48 |

Egyptian Weaving Yarns.

Single Skeins Combed.

| | |
|---|---|
| 30s | 39 |
| 36s | 41 |
| 40s | 42 |
| 45s | 45 |
| 50s | 49 |
| 55s | 52 |
| 60s | 51 |
| 70s | 62 |

## The Philadelphia Market.

| | |
|---|---|
| 7s and coarser | 18½ |
| 8s and 9s | 19½ |
| 10s | 20 |
| 12s | 20½ |

# THE J. R. MONTGOMERY CO.,

**Windsor Locks, Conn.**

MANUFACTURERS OF

**Mercerized Cotton Yarns** Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

**Novelty Yarns** Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

**Cotton Warps** on Beams, Jack Spools and Tubes. In Fancy, Twist, Colors and Printed.

---

Greene & Daniels Manufacturing Co.,

Combed, Carded and Gassed

**Yarns, Threads, Twines and Chain Warps**

Dye Sulphur Blacks Direct in Cops, Cones or Tubes.

Colored and Bleached Yarns Furnished in any manner desired by the trade. Pawtucket, R. I.

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# MONUMENT MILLS,

Manufacturers of

White, Colored, Fancy and Double Twist

**COTTON WARPS**

**HOUSATONIC, MASS.** 4s to 60s.

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WM. C. JOHNSON J. TOWNSEND WALKER

Johnson and Walker

**COTTON YARNS**

All Nos. and Descriptions

Accounts Solicited

P. O. Box 659
Banigan Building, Room 528 PROVIDENCE, R. I.

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**C. MOORE & CO.,**

Manufacturers of

**TWINES, THREADS AND YARNS**

Jacquard Harness Twines of all kinds on hand and made to order.

S. W. Cor. Fifth and Market Sts., Phila.

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**Students Cotton Spinning**

By NASMITH

Price $3.00. Express prepaid

FOR Student and Manufacturer. Covers all operations from ginning through ring and mule spinning.

*600 pages, 600 illustrations, drafts, plans, etc.*

Lord & Nagle Co., Publishers, Boston

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**EDDY & STREET,**

Cotton, Woolen

**Yarns and Braids**

Worsted, Spun Silk.

PROVIDENCE, R. I.

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ESTABLISHED 1885

**John Eppler's Machine Works, 629 Filbert St., Phila., Penna.**

Manufacturers of

**Latest Improved Cop Machinery**

of all kinds and

**Upright Knitting Machinery for Millinery**

Dress and Upholstery Trimmings

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**GRANT YARN CO.,**

COMBED AND CARDED COTTON.

**YARNS** 40's and above. AND

FITCHBURG, MASS. **WARPS**

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# The Merwin Paper Company

**Hartford, Conn.**

**Press Papers and Fender Boards**

*Correspondence Solicited*

Mills at Rainbow, Conn. Address Inquiries to Rainbow, Conn.

| | |
|---|---|
| 14s | 21 |
| 16s | 21½ |
| 18s | 22 |
| 20s | 22½ |
| 22s | 23 |
| 24s | 23½ |
| 26s | 24 |
| 30s | 25 |
| 40s | 30 |
| 50s | 36 |

Southern high grade mule yarn:—

Cones.

| | |
|---|---|
| 10s | 21 |
| 12s | 21½ |
| 14s | 22 |
| 16s | 22¾ |
| 18s | 23¼ |
| 20s and 22s | 23¾-24¼ |
| 24s | 24¾ |

Southern frame yarn, lower grades:—

| | |
|---|---|
| 6s and 8s | 18 |
| 10s | 19 |

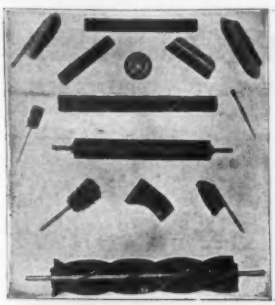
Eastern cones (high grade quality):—

| | |
|---|---|
| 10s | 21½ |
| 12s | 22 |
| 14s | 22½ |
| 16s | 23¼ |
| 18s | 23¾ |
| 20s and 22s | 24¼-24¾ |

Skein yarn (mostly Southern):—

| | |
|---|---|
| 4s and 8s soft | 18 |
| 10s and 12s | 18-18½ |
| 14s to 20s | 19-20 |
| 22s | 20½ |
| 10/2 | 19 |
| 16/2 | 20 |
| 20/2 | 22 |
| 30/2 | 24 |
| 40/2 | 30 |
| 8/3 | 17½ |
| 7/6 | 18 |

Tennessee, Memphis. It is reported that the American Bag Co. will soon erect a cotton cloth mill in New South Memphis, or purchase buildings suitable for cotton manufacturing and remodel them. This report has not been confirmed, and may have grown out of the fact that the company recently issued bonds for $250,000.

S. R. MASON, Treasurer

MASON BRUSH WORKS

Mill and Machine Brushes

Repairing a Specialty.

Worcester, Mass.

JAMES E. MITCHELL CO., COMMISSION MERCHANTS

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Brown Building, 185 Summer Street, BOSTON, MASS.
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CATLIN & CO.,

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COTTON AND WORSTED YARNS

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A. D. Salkeld & Bro.

COMMISSION MERCHANTS

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Cotton and Worsted Yarns

366 Broadway cor. Franklin St., NEW YORK

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MERCERIZED
TURKEY RED
GASSED } COTTON YARNS.

LUDWIG LITTAUER,

SUCCESSOR TO

MOELLER & LITTAUER, 109 Greene St., New York

SILK, WORSTED, WOOLEN YARNS COTTON AND MOHAIR

Polished Threads and Tinsel. Artificial or Wood Silk.
Mercerized, Turkey Red, Fine Gassed Yarns.

SILK MILL, BOONVILLE, N. Y.

SAVOGRAN

Cleans Wool, Floors, Anything.

INDIA ALKALI WORKS, Boston.

The Bradley Stencil Machine

Makes stencils in half a minute, at reduced cost of 1-10 cent each. Write for catalogue and price list.

In universal use by thousands of manufacturers and shippers.

A. J. BRADLEY General Sales Agent 101 Beekman St. New York, U. S. A.

Also manufacturers of Oil Stencil Board. Write for prices and samples.

S. T. Crocker, Pres. W. F. Stiles, Treas.

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**Fitchburg, Mass.**

Capacity, 45,000 Spindles.

**HIGH GRADE YARNS**

From Egyptian and Peeler Cottons, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

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# Cotton Yarns

**Jenckes Spinning Company**
Pawtucket, R. I.

Carded and Combed single and twisted Yarns and Threads from Peeler, Sea Island and Egyptian Cottons, on Cops, Cones and Tubes or in Skeins and Warps. Six Cord Thread Yarns a Specialty **Bleached or in colors**

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**You Save Enough Insurance to Pay for the Equipment.**

So it costs you NOTHING to have the AMERICAN WATCHMAN'S CLOCK. Fully approved by all insurance companies. We equip factories with Fire Alarms, Signals, etc., also Employee's Time Recorders, and Telephone Systems. Electric Time System consists of Master Regulator in office with secondary electric clocks throughout the mill, insuring accurate time. Send for particulars.

**Pettes & Randall Co., 150 Nassau St., New York**

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**T. H. S. CONE,** Direct Selling Agent
**COTTON YARNS**
77 Worth Street, New York, N. Y.
Representing
Norwood Mfg. Co., Norwood, N. C.
Linn Mills Co., Landis, N. C.

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**Century Cotton Mills**
Manufacturers of
**Hosiery Yarns**
Nos. 10s to 30s Sell Direct
South Boston - - - Virginia

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# Knitting and Weaving YARNS.

Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment.

**EDWARD S. HYDE,**
**226 CHESTNUT STREET,**
**Philadelphia, Pa.**

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Authorized Capital $100,000
W. A. Dickel, Pres. and Treas.
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Jasper and Hundlagdon Sts., Phila., Pa.
Manufacturers of
NARROW FABRICS
Special Attention Paid to Plain and Fancy
Spool Tapes and Stay Bindings.

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**F. W. MAURER & SONS CO.**
MANUFACTURERS OF
**Fringes, Tapes, Bindings, & Narrow Fabrics**
Office and Factory: WAYNE AVE. and BRISTOL STS.
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**KROUT & FITE MANUFACTURING CO.,**
Manufacturers of
**Silk, Cotton and Mercerized Narrow Fabrics**
SPOOL TAPES A SPECIALTY.
Telephone Connection. Office and Mill, Allegheny Ave. and Emerald St., PHILADELPHIA.

Pennsylvania, Philadelphia. About $50,000 damage was caused in the Star Carpet Mill & Dye Works, Joseph Taylor & Son, proprietors, at Montgomery Ave. and Howard St. by fire. The whole building was practically flooded by water. Other firms who suffered losses are Isaac Lockhart, manufacturer of ingrain carpets, and the Saxonia Dress Goods Mills.

Massachusetts, North Adams. It is declared that after the reorganization of the Mayflower Worsted Mills the name of the company will be changed, and a somewhat different line of goods from those produced at present will be manufactured. The Earnscliffe Worsted Mills will have no interest in the reorganization.

*Massachusetts, North Dighton. The Chadwick Print Works has filed a petition for the dissolution of the corporation, representing that it carries on no business and there is no reason for its continuance. As reported previously all its assets have been transferred to the Algonquin Printing Co., Fall River, Mass., which has assumed its liabilities.

Massachusetts, Southbridge. The capital stock of the Southbridge Printing Co. has been increased by the issue of $50,000 new stock. Frank Hartley of Webster, and S. Schuster of East Douglas are taking the new stock. Mr. Schuster has been chosen president of the company, Mr. Hartley, treasurer and general manager.

Massachusetts, Taunton. Definite plans for the proposed new mill for the New England Cotton Yarn Co. have not been decided upon. In fact it has not been decided where the mill will be located.

*Massachusetts, Uxbridge. The new name of the C. A. Root Co. is Waucantuck Mill. Edward J. Brady is president; William G. Brady, treasurer and buyer, and Sidney H. Little, superintendent.

New Jersey, Bridgeton. Particulars of the proposed enlargement to the Martin Dyeing & Finishing Co.'s plant have not been decided.

*New Jersey, Hillsdale. The Hillsdale Bleachery Co. has not as yet acquired the factory building formerly occupied by the American Cigar Box Co., and the sale to clear the title of the property has been postponed until September. George Bothamley, president of the company, resides in Hillsdale.

New Jersey, Paterson. The Merit Silk Co. has been incorporated with capital stock of $25,000 to manufacture silk fabrics. J. H. and E. Farrar and J. E. and M. K. Bolton, all of Paterson, are the incorporators.

**Rhoads Leather Belting**

Have you tried *your* muscle on a slender slit sample of Round Tannate? It gives a surprise. And Tannate is as lasting as it is strong. It is widely recognized as the best round belting on the market. Write for a "pull sample"

Tannate Flat Belt also, is a winner for high speed and hard drives.

Tannate Lace Leather too, has the "Tannate" quality, and we have yet to find its equal.

High priced, but large savers of your money.

**J. E. RHOADS & SONS**

PHILADELPHIA 12 N. Third St. | NEW YORK 40 Fulton St. | CHICAGO 243 E. Randolph St.

Factory and Tannery, Wilmington, Del.

**LINEN YARN IMPORTER.**

HUGHES FAWCETT, 115 Franklin St., NEW YORK

Flax, Hemp and Jute Line and Tow Yarns, For Weaving Purposes.

Linen Jacquard Harness Twines, Fine Cotton Harness and Heddle Twines, For Cotton, Silk, Woolen and Carpet Manufacturers.

Correspondence solicited. Samples promptly furnished.

**DUNCAN & YOUNGS**

95 Worth Street, NEW YORK

Practical Manufacturers of

**YARNS, THREADS, TWINES, CORDS, ROPE**

AND MILL SUPPLIES

Anything in the line you cannot get anywhere else apply to us.

**William B. Charles,**

Amsterdam, N. Y.

**Cotton Yarns, Cotton Cloth, Silesia, Sateens,**

For the Underwear Trade.

**F. C. BARTON**

65 Worth Street, New York

MANUFACTURER OF

"LILY" BRAND NARROW FABRICS WEB, TAPE, BINDINGS, ETC.

**THE BIAS NARROW FABRIC CO.**

F. C. BARTON, President

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Bias and Straight Cut Fabrics and Ribbons.

Embossing and Cutting Customers Own Goods a Specialty.

*Pocasset Worsted Company,*

*Worsted Yarns.*

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**QUEENSBURY MILLS**

**Mohair, Lustre and Worsted Yarns**

—Single and Two Ply—

Grey—Colors on Mixtures Worcester, Mass.

French System. **B. F. BOYER CO.,** Bradford System.

MANUFACTURERS OF

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Office and Mill, River Ave. and Marlton St. CAMDEN, N. J.

**Woolen and Merino YARNS**

**Eaton Rapids Woolen Mills,**

EATON RAPIDS, MICH.

**Testing of Yarns**

Count—Twist—Strength—Moisture

When in doubt apply to

**U. S. Silk Conditioning Company**

472-474 Broome St., New York

**Lowell Crayons** Meet the requirements of any cotton, woolen or worsted mill.

May we send samples? 15 colors and white.

Lowell Crayon Co., Original Manufacturers Lowell, Mass.

Trade Mark on every box.

**The Cotton Manual**

**By J. T. Broadbent.**

of the Bradford-Durfee Textile School, Fall River, and formerly of the Mississippi Textile School.

This little Manual was prepared with the idea of telling briefly, but comprehensively, the things about the cotton fibre, its cultivation, and the ginning and marketing of the cotton crop, the different kinds of cotton, and other matters bearing on raw cotton, such as the average student or person connected with cotton manufacturing or the sale of cotton goods, wants to know.

There are excellent chapters on cotton baling, describing the different kinds of bales and baling processes, and on the opening and mixing of cotton in the mill, with account of different machines employed, and improved methods of mixing.

The book contains about 100 pages with 20 illustrations, and should be in the possession of every person having to do with cotton in any state, from the seed to the retail purchaser.

**Price 75 Cents.**

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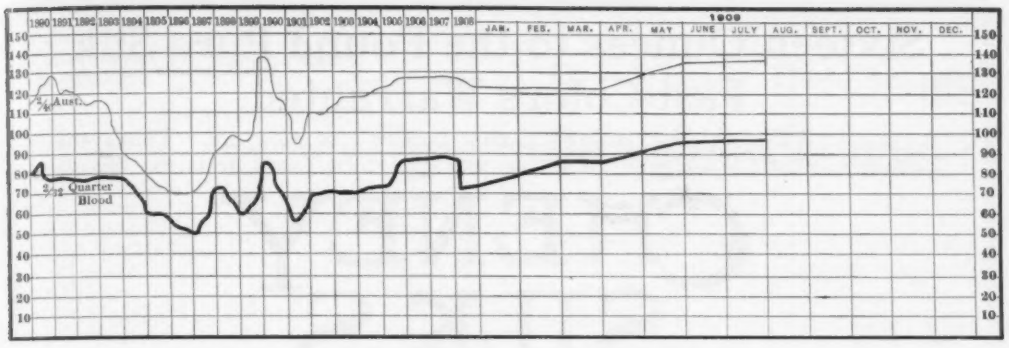


CHART SHOWING RANGES IN THE PRICE OF YARN TO DATE.

## The Woolen and Worsted Yarn Market.

The spinners of worsted yarns are all very busy working on orders which have been previously placed and expect to be occupied until the end of the year. Immediate deliveries are hard to get and many of them are turning away business claiming that they are entirely sold up. Within the past few weeks there have been many inquiries for mixes in 2/32s, but dealers are unable to quote prices on these yarns for the reason that spinners will not take them up, claiming that they have as much business as they can handle on grey yarns, which is a more staple article and easier to turn out than mixed yarns, which are more on the novelty order.

Dealers in worsted yarns claim that business with them is now quiet but state that they expect a large business within a short time. They also claim that many demands are now being made upon them from both the men's wear and dress goods trade for single 16s and 18s in Bradford yarns and single 36s French spun yarns. Some weavers are also asking for 2/22, 24, 28 and 30 in 3/8 and 1/2 blood in mixes and white, with deliveries beginning January next.

It is anticipated that the dress goods trade will be in the market for yarns about the middle of August. There is a prospect of a scarcity in both these numbers, as the men's wear trade have placed such large orders with the spinners that one can hardly see where the dress goods mills are going to get their yarns to fill orders.

The cloak and suit trade at this time are considering the advisability of buying woolen cloths in preference to worsted goods, as they claim that these goods will be easier to get than the worsted fabrics and at a much lower cost. This will have a tendency, it is said, to cause an advance in woolen yarns and it will then be a question as to what the cutter-up will have to use. Woolen goods such as home spuns are in great demand.

The knitters are drawing on the woolen spinners for large quantities of yarns in oxfords, colors and whites, the greater demand being for white yarns, and spinners have advanced their prices all along the line, the advance in white yarns being greater in proportion on account of the increased demand. Oxfords have gone up one cent per pound within the past month and white yarns two and two and a half cents per pound.

On worsted yarns there has been no material change in prices except in 2/36s, 3/8 blood, Bradford yarns, which are now selling at $1/12 1/2 to $1.15 per pound and an increase of 5 cents per pound in French spun 1/20 high 1/4 blood which are now selling at $1.05.

### BRADFORD SPUN YARN.

| | |
|---|---|
| 2/16 Ingrain (black) | 48 |
| 2/16 Ingrain (light grey) | 49 |
| 2/16 Ingrain (white) | 50 |
| 2/12 to 2/16 low common | 65-67½ |
| 2/12 to 2/20 1/4 blood | 84-86 |
| 2/20 to 2/24 1/4 blood | 90 |
| 2/26 to 2/28 1/4 blood | 95 |
| 2/32 1/4 blood | 97½-1.02½ |
| 2/20 3/8 blood | 1.00 |
| 2/26 3/8 blood | 1.07 |
| 2/30 3/8 blood | 1.08 |
| 2/36 3/8 blood | 1.12½-1.15 |
| 2/40 1/2 blood | 1.25 |
| 2/40 delaine | 1/30-1.32 |
| 2/50 delaine | 1/35-1.37½ |
| 2/40 Australian | 1.30 |
| 2/50 Australian | 1.37½ |
| 2/60 Australian | 1.50-1.52½ |
| 2/24 lustre | 85 |
| 2/28 lustre | 87½ |
| 2/30 and 3/32 lustre | 85-87½ |
| 2/36 lustre | 95-97½ |

## Sixteen Ounces to the Pound Pure Silk
## Fast Colors Warranted

A pound of Cheney Silk *means* "sixteen ounces" of *pure silk*. That's the Cheney standard of weight. Whether it's Spun Silk Yarns or Dress Goods

# CHENEY SILKS

maintain that standard. Moreover, Fast Colors are *Guaranteed*—a feature of vital importance.

***CHENEY SPUN SILK YARNS***

are made in the Gray or Dyed; on Spools or Cones, Warped or in the Hank. Organzines, Trams and Singles—full weight—fast colors. Special Yarns made to order for all sorts of Silks or Silk Mixture Goods. Manufacturers' orders promptly executed. Also makers of

***Dress Silks, Satins, Gros-Grains, Shower-Proof Foulards, Pongees, Millinery Silks, Upholstery Goods, Ribbons, Sashes, Plushes, Velvets, etc., etc.***

CHENEY BROTHERS, *Silk Manufacturers*

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*Salesrooms:*

NEW YORK, 477 Broome St. BOSTON, 79 Chauncy St.
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## WILLIAM RYLE & CO.,

**Foreign and Domestic**

# Spun Silk Yarns and Noils.

**Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.**

**54 Howard St., cor. Mercer St., NEW YORK.**

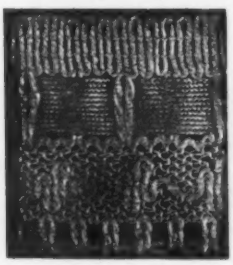
## SAUQUOIT SILK MFG. CO.,

***INSULATING AND BRAIDING SILKS.***

**ORGANZINE, TRAM & HOSIERY SILKS.**

**Fast Dye Organzines for Woolen Manufacturers a Specialty.**

**Mills: Bethlehem, Pa., Phila., Pa., Scranton, Pa. New York Representatives, Wm. Ryle & Co., 54 Howard St.—Phila. Office, 4015 Clarissa St., Nicetown.—Chicago Office, 188-190 Market St.—Boston Office, 78 Chauncy St.**



# GEORGE W. CHAPIN,

**BRAIDS** Cotton, Worsted, Mercerized, Cotton and Silk Twilled. **TAPES** Common, Twilled, Superfine and Plain 13 to 35s. white and colors on spools.

**YARNS** Cops, Skeins, Warps, Tubes and Cones. **THREADS** on Spools, Tubes, Cones, U-bleached Bleached and Colors for Manufacturers' use.

**CROCHET LACE EDGINGS** Latest Styles in Pant Laces.

**229 Church Street 231 . . PHILADELPHIA**

| | |
|---|---|
| 1/24 worsted and 80s single cotton for raincloths | 1.10 |
| 1/24 worsted and 120 single cotton for raincloths | 1.27 |

**FRENCH SPUN YARN.**

| | |
|---|---|
| 1/20 1/4 blood | 96 |
| 1/20 high 1/4 | 1.05 |
| 1/20 high 3/8 blood | 1.07½-1.10 |
| 1/20 1/2 blood | 1.15-1.17½ |
| 1/20 3/8 blood | 1.03-1.05 |
| 1/30 high 1/4 blood | 1.02½-1.05 |
| 1/30 3/8 blood | 1.07½-1.10 |
| 1/30 1/2 blood | 1.17½ |
| 1/40 1/2 blood | 1.20-1.22½ |
| 1/50 delaine | 1.27½-1.30 |
| 1/40 Australian | 1.42½ |
| 1/50 Australian | 1.45 |
| 1/60 Australian | 1.48 |
| 1/70 Australian | 1.53 |

WOOLEN YARN.

| | Wool | Cotton | |
|---|---|---|---|
| 2/20 Light Grey Mixed | 80% | 20% | 53 |
| 2/20 Light Grey Mixed | 90% | 10% | 55 |
| 2/20 Light Grey All Wool | | | 58 |
| 2/20 Colored All Wool | | | 65 |
| 2/20 Bleached | 80% | 20% | 67 |
| 2/20 Bleached | 90% | 10% | 75 |
| 2/20 Bleached All Wool | | | 72½ |
| 2/25 Light Grey Mixed All Wool | | | 77⅔ |
| 2/25 Bleached All Wool | | | 82 |

### The Rag and Shoddy Market.

There is little change in the demand for wool substitutes and prices have remained stationary. The high prices for wool have had little effect on the market for substitutes. Dealers, however, claim that this is due to the fact that mills are now on light weights, and that the improvement will come when the heavy weight season opens. The better grades of wool waste are firm and in fairly good demand. Worsted wastes are high and scarce. We quote as follows:

**SHODDIES AND EXTRACTS.**

| | |
|---|---|
| White yarn, best all wool | 46-50 |
| White knit, all wool, best fine | 38-40 |
| White knit, No. 2 | 32-38 |
| Light yarn, extra fine | 33-36 |
| New pure indigo blue | 30-32½ |

***Merino.***

| | |
|---|---|
| Fine light, all wool | 28-31 |
| Medium light, all wool | 17½-20½ |
| Fine black, all wool | 27-29 |
| Fine dark, all wool, best grade | 20-23 |
| Medium dark, all wool, No. 2 | 17-18 |
| Red knit stock, strictly all wool | 21-24 |
| Red flannel, all wool | 26-27 |
| Dark blue for hosiery, strictly all wool, No. 1 | 22-25 |


# Do Your Dividends Go Up the Chimney?

Anyone can spend money and anyone can burn coal. It requires a combination of rare qualities to spend money to the best advantage, and a scientific knowledge of the principles of combustion to secure from coal the utmost efficiency in your fire room.

**Good Coal and Good Boilers are important but Good Fire-Room Practice is Essential.**

Without it your power plant is a steady daily drain on your resources and dollars which should go for dividends are going up the chimney.

**Hot Air Costs Money**

Yet most boiler plants send into the stack ten tons of *excess* hot air for every ton of coal they burn.

## Is Your Plant Doing This?

No matter what coal you are burning our fuel engineers can tell you

***The proper grate to use***
***The best depth of fire***
***The most efficient draft***

They can tell you exactly what your plant is doing, where the wastes are and how to cut them out. They bring to your service the experience acquired in hundreds of plants throughout the country. They can save money for you.

***It will only take a minute to write for details.***

**ARTHUR D. LITTLE, Inc.**

**Laboratory of Engineering Chemistry**
**Fuel Engineering Department**

**93 Broad Street, - Boston**

TRADE MARK REGISTERED IN
NON-FLUID OILS
UNITED STATES PATENT OFFICE

lasts six to eight weeks in comb-boxes of cards. Comb-boxes run much cooler and there is no spattering or dripping to injure card clothing or goods in drawing cans.

This same grade for general use in spinning and mule frames, etc., outlasts other lubricants, gives cleaner service and requires less attention.

Non-Fluid Oils are used with greater economy and cleanliness than fluid oils because they feed from oil cans one drop at a time instead of wasting in a stream.

Free sample upon request. Address Dept. H.

ORIGINATORS AND SOLE MANUFACTURERS

**NEW YORK AND NEW JERSEY LUBRICANT COMPANY**

165 Broadway, NEW YORK CITY

**EDWIN F. SCHOFIELD**

**Cotton Waste**

IMPORT and EXPORT

45 S. 3rd St. Philadelphia

**William B. Charles,**

Amsterdam, N. Y., U. S. A.

**Cotton and Wool Wastes**

**COTTON YARNS**

Contracts made with Cotton and Woolen Mills for Yearly Waste Production. Correspondence solicited. Shepperson's Code, 1878. Cable Address "Charles."

C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice-Pres. and Sec'y.
Established 1860—Incorporated 1893.

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**COTTON,** EGYPTIAN PERUVIAN

American Long Staple a Specialty. Shipments direct to mill from Egypt, Peru and all American Southern Points.

**CHICOPEE, MASS.**

Cotton Waste Purchased on Yearly Contract from Mills.

Dark blue for hosiery, not all wool.

| | |
|---|---|
| No. 2 | 17½-20½ |

**WOOLEN RAGS.**

| | |
|---|---|
| Fine merchant tailors | 9-10 |
| Choice light colors | 15-18 |
| Browns | 11-15 |
| Blacks | 10-13 |
| Fine blues, plain | 10-12 |
| Fine dark | 10½-13 |
| Medium dark | 6-10 |

*Worsteds.*

| | |
|---|---|
| Blue | 15½-17½ |
| Black | 19-20½ |

*Serges.*

| | |
|---|---|
| Black | 11½-12 |
| Blue | 14½-15½ |

*Flannels.*

| | |
|---|---|
| New scarlet | 18-20½ |
| New blue | 17½-20½ |
| Cloakings | 4-7 |

SOFTS AND KNIT STOCK.

| | |
|---|---|
| Soft woolens, best | 5½-7½ |
| Old white flannels | 12-13½ |
| Old red flannels | 12-13 |
| Old blue flannels | 5½-7½ |
| Old plaids | 7-10 |
| White stockings | 20-23 |
| White hood stock | 20-24 |
| Clear hoods | 10-12 |

## Dyestuffs and Chemicals.

Acids.

| | |
|---|---|
| Acetic, 100 lbs. | 2.27-2.35 |
| Citric, domestic | 38-50 |
| Oxalic | 6-7 |
| Sulphuric, 66°, 100 lbs. | 1.00-1.10 |
| Muriatic, 18° | 1.16-1.26 |
| Tartaric crystals | 26-27½ |

Miscellaneous Chemicals and Dyestuffs.

| | |
|---|---|
| Acetate of lime, gray, 100 lbs. | 2.00-2.05 |
| Alum, lump | 1.75-1.85 |
| ground | 1.85-2.00 |
| powdered | 2.85-3.25 |
| Aqua ammonia, 26° | 3-6½ |
| Ammoniac sal, gray | |
| Borax, bbls. | 4-8 |
| Brimstone, crude, ton | 27-51 |
| Copperas | 66-80 |
| Cream tartar, crystals | 22-25 |
| Fuller's earth, powdered, ton | 21-23 |
| Glauber's salt | 65-80 |
| Potash, chlorate, crystals | 9-11 |
| powdered | 12-14 |
| carbonate | 6-8 |

J. LEE NICHOLSON, Pres. A. J. STERN, Vice Pres.

**The American Cost Accounting Company**

346 BROADWAY, NEW YORK

Best known Cost Specialists in the United States

Present condition analyzed and Defects corrected. Cost Systems Devised and Installed. Correspondence invited.

# FIRE, LIGHTNING, WINDSTORM.

## The HOME INSURANCE COMPANY NEW YORK

Organized 1853. MAIN OFFICES, 56 CEDAR ST.

*Cash Capital, $3,000,000.*

| | |
|---|---|
| ASSETS January 1, 1909 | $24,856,499 |
| LIABILITIES (Including Capital) | 14,173,678 |
| RESERVE AS A CONFLAGRATION SURPLUS | 800,000 |
| NET SURPLUS OVER ALL LIABILITIES AND RESERVES | 9,882,821 |
| SURPLUS AS REGARDS POLICY-HOLDERS | 13.682,821 |
| Losses Paid Since Organization Over | $115,000,000 |

**INDEMNITY**
For loss of
**Profits**
**Commissions**
**Use & Occupancy**
on acceptable
**Textile Plants**
at the
**Minimum Rate**

IS prepared to entertain liberal lines on Sprinkler-Equipped and Modern Improved risks generally, having a special department for the consideration of such business.

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FREDERICK C. BUSWELL, Vice-Pres. CHARLES L. TYNER, Secretary.
CLARENCE A. LUDLUM, Asst. Sec'y. HENRY J. FERRIS, Asst. Secretary.


| | |
|---|---|
| Soda, bicarbonate | 1.62-1.75 |
| Soda, caustic, domestic, 60 per cent. | 1.77-1.90 |
| Sal., American | 72-86 |
| Vitriol, blue | 5½-7½ |
| Acetate of soda | 4-7 |
| Acid, picric, best crystals | 26-50 |
| tannic, commercial | 30-41 |
| Albumen, egg | 61-70 |
| blood | 25½-35½ |
| Alizarine, red | 19 |
| Aniline, oil | 10-13 |
| salt crystals | 14 |
| Bichromate of potash, American | 9-11 |
| Bichromate of soda | 8-11½ |
| Bisulphite of soda | 3-5 |
| Cutch, mat | 5-8 |
| Dextrine, imported potato | 6-8½ |
| Divi-divi, ton | 42-45 |

E. P. Merrill has accepted the position as overseer of finishing at the Blackstone Stocking Company, Central Falls, R. I. He comes from Laconia, N. H.

Eugene R. Tilton has accepted the position as overseer of knitting at the Clinton Knitting Company, Clinton, N. Y. He was formerly at Utica, N. Y.

John Walton, Sr., has accepted the position as superintendent of the York Knitting Mills Company, York, Pa. He comes from Danville, Va.

Geo. Sanderson has resigned his position as overseer of knitting at the Piqua Hosiery Company, Piqua, Ohio. He has accepted a position at Troy, N. Y.

Harry Loefell has accepted the position as superintendent of the knitting department at the Stuart-Brown Underwear Company, Piqua, Ohio. He comes from Troy, N. Y.

A. J. Philbrick has accepted the position as overseer of knitting at the Textile Mfg. Company, Chicago, Ill. He was formerly employed at the Mankato Mills, Mankato, Minn.

H. F. Drenk, superintendent of the Wisdom Hosiery Mills, Paducah, Ky., has resigned his position with that concern to take a position with Wm. F. Taubel at Riverside, N. J., where he is now located.

Ineo. Kaltschmidt has accepted the position as sewing machine fixer at the Mentor Knitting Mills Company, Mentor, Ohio.

Curt J. Vogel, formerly with the Magnet Knitting Mills, Clinton, Tenn., is to have charge of the manufacturing in general, knitting, dveing and finishing at the Shenandoah Hosiery Mills, Shenandoah, Ia.

Ernest Thorne has accepted the position as overseer of rib knitting at the Trov Knitting Company, Troy, N. Y.

# The WM. H. LORIMER'S SONS CO.,

Manufacturers of

**MERCERIZED YARNS**

FOR ALL PURPOSES.

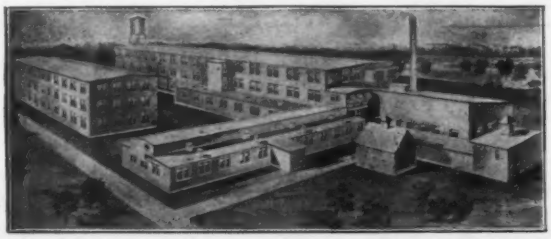
**MERCERIZERS AND DYERS.**

New York Office:
Room 911 New York Life Building,
346 Broadway.

Ontario and Lawrence Sts.,
PHILADELPHIA, PA.

PETER B. MCMANUS, Pres. and Treas. EDWARD J. MCCAUGHEY, Secy. and Mgr. JOHN MCMANUS, Vice-Pres.

# HOME BLEACH AND DYE WORKS, Inc.



Dyers, Bleachers and Mercerizers of

**Cotton Yarns**

in skein, and long and short

**CHAIN WARPS**

**Fast Colors a Specialty.**

Daily Capacity 30,000 lbs.

**Fast Colors and Black for Worsted Trade.**

Office and Works, Pawtucket, R. I.

Established 1881.

## GLOBE DYE WORKS CO.,

Successors to R. Greenwood & Bault

DYERS BLEACHERS AND **MERCERIZERS**

*OF COTTON WARPS AND SKEIN YARNS*

Globe Bleach and Dye Works,
Oxford and Worth Sts., Frankford, Pa.

140 Chestnut St., PHILADELPHIA.

## JOHN F. DAVIDSON, Orianna Bleach Works

**BLEACHER**

**Of Turkish Towels, Cotton Yarns, Underwear and Tapes**

2558-2564 North 3d Street, 2557-2563 Orianna Street, PHILADELPHIA
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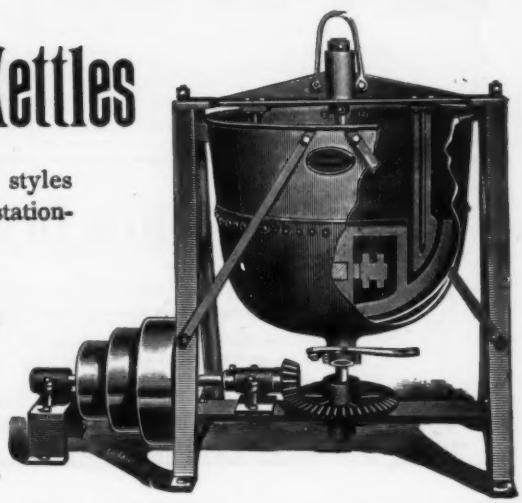

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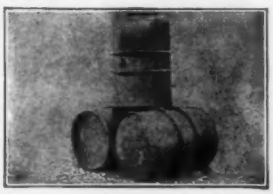

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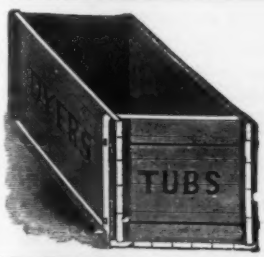


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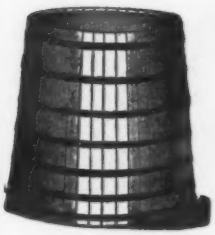

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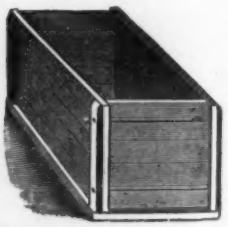

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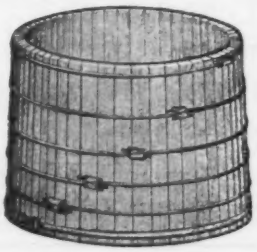

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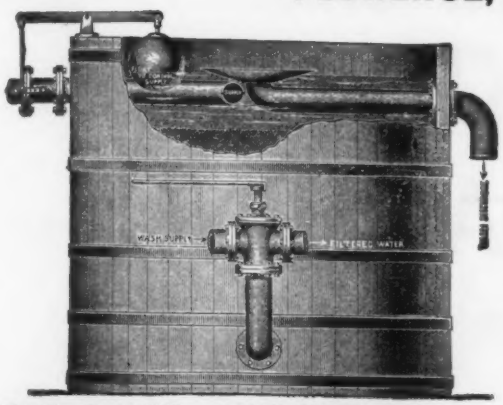

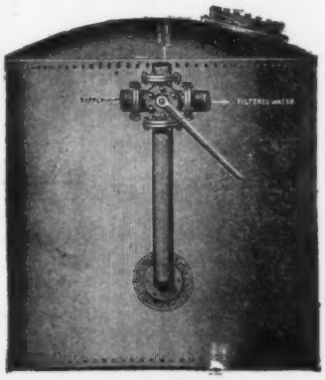

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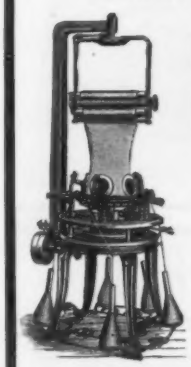

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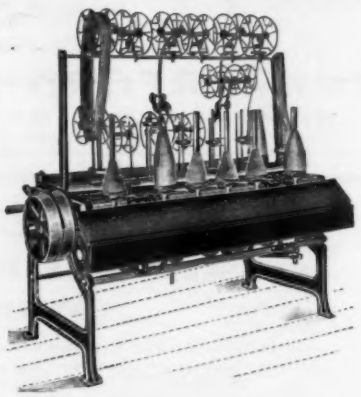

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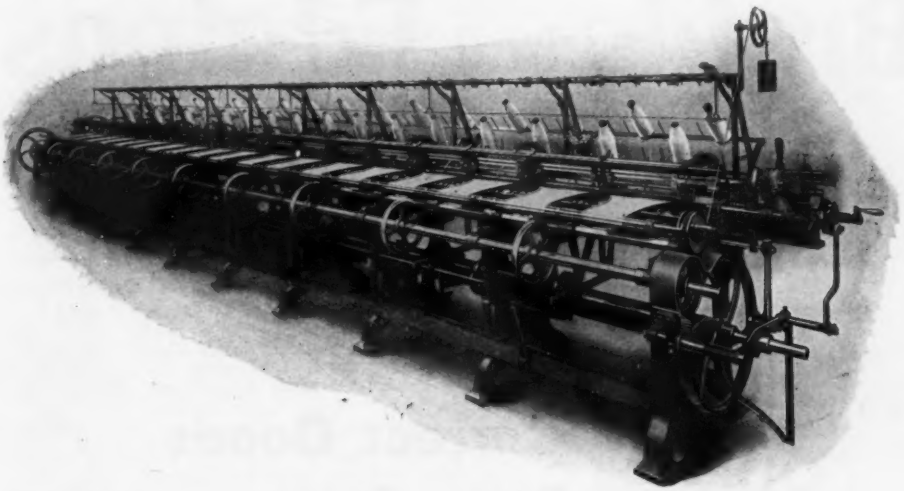

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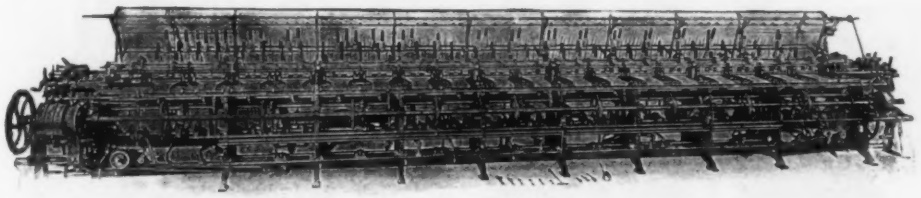

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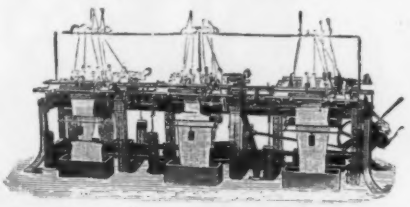
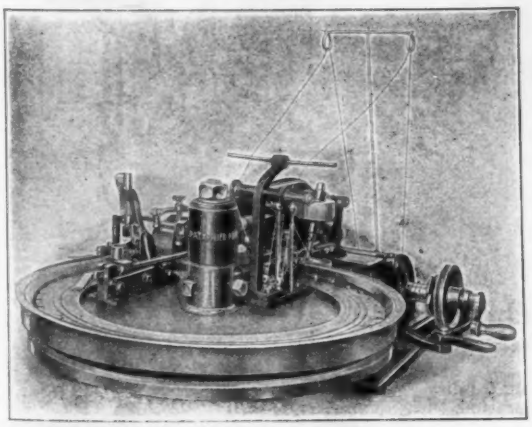
For HAND Power or FULLY AUTOMATIC Power MACHINES. Most productive and best machines for Sweaters, Jackets, Blouses, Wool Hosiery, Gloves, Mittens, Sporting Goods in Plain, Fancy and Jacquard Work, Shaker Articles, etc. Large stock on hand. Power Machines to be seen in operation.



**CIRCULAR FRENCH FRAMES**
C. Terrot Söhne, Cannstatt, Würt, famous builders of the best Circular Frame for Finest Underwear, Fleece Linings, Gloves, Special á-jour (openwork) Fabrics, etc.

**RASHEL MACHINES** [Double Rip Warp Knitting Machines.]
For Fancy Goods in largest variety, Shawls, Capes, Caps, Borders, Fringes, Lace Work, etc., in silk, wool cotton.



**The LOOPER THAT LOOPS!**
Two thread lock stitch machine with reliable trimmer and raveller producing *indestructible, flat elastic* seam.
No Hosiery or Underwear plant up to date without this machine.

**DIAMOND OVERSEAMERS**
for all classes of selvege goods, Full Fashioned Hosiery, Underwear, etc.

**FINISHING MACHINES** for Knit Goods of all styles.

**WINDERS** for finest yarns.

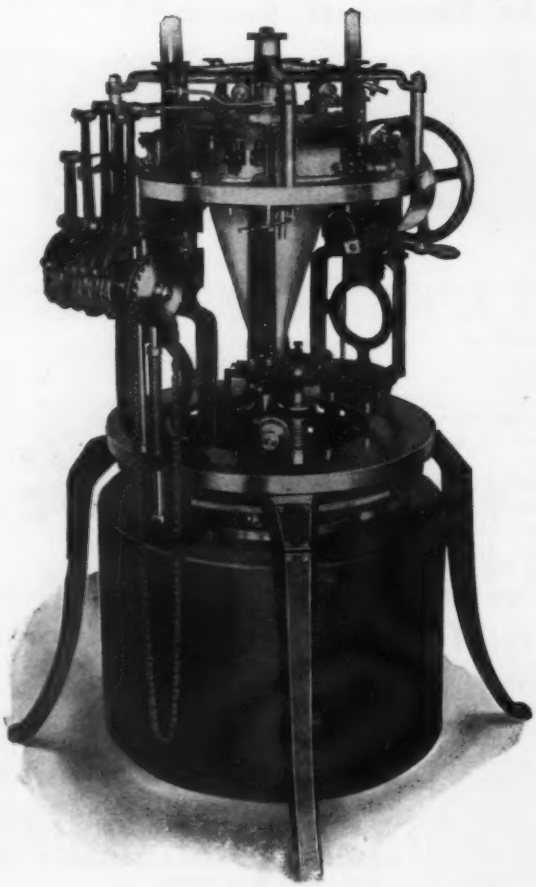
---

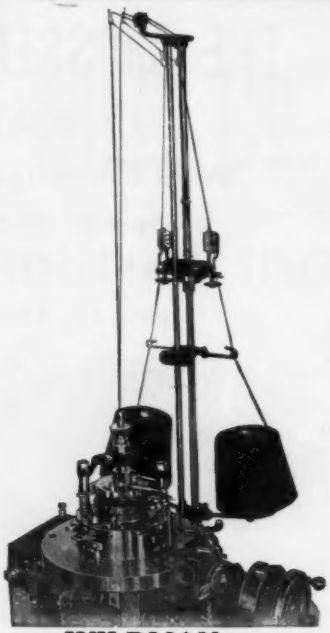
**Information, Samples and Specifications at Your Disposition**

# Wildman Mfg. Co.

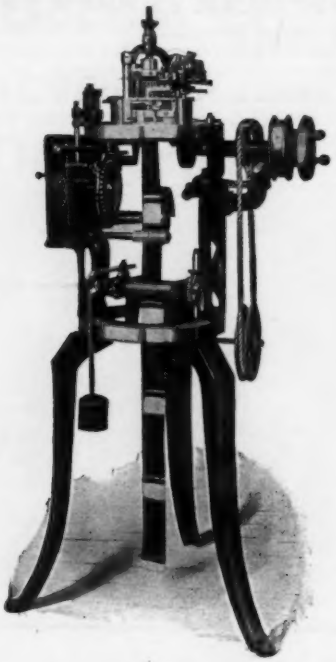
MANUFACTURERS OF

## Circular Rib Knitting Machinery
## AUTOMATIC STOP MOTIONS
## ELECTRIC CLOTH CUTTERS



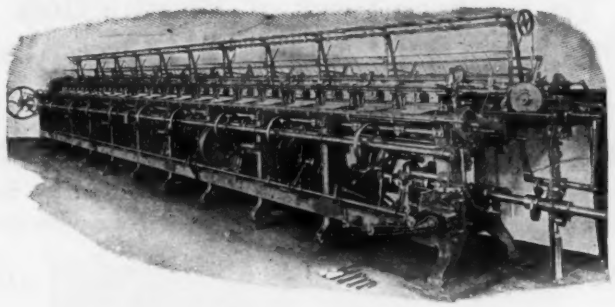


**WILDMAN**
**Chainless RIBBERS for Hosiery**
**With Automatic Attachments for Striping, Splicing, Selvage Welt and a TWO-SPEED DRIVE**
To Increase and Improve the Product
**WILDMAN AUTOMATIC STOP MOTIONS**



**WILDMAN**
**Plain and Automatic Machines**
**For Underwear, Union Suits, Sweater Coats, Knitted Skirts, etc.**
Established Reputation for Large Production, Quality of Fabric, Durability and Economy of Operation.
**Illustrated Descriptive Catalogue.**

## NORRISTOWN, PA.



# David Richter, Inc.

were the first machine builders in Chemnitz, Germany, to construct

## Full Fashioned Hosiery Machines

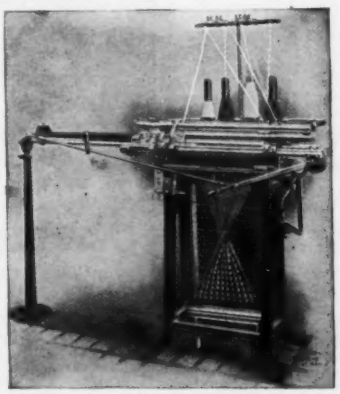
upon the *Cotton principle* and which since their introduction have never been excelled by any other machine builder, be it in construction or production. Built in all gauges and for any material, cotton, wool, lisle or silk.

## Edward Dubied & Co.

**Couvet, Switzerland,**

Leading Manufacturers of

## Flat Knitting Machines



For Hand and Power, Full Automatic, Etc.

Best constructed and most productive machines on the market for manufacturing sweaters, gloves, sporting goods, etc.

Acknowledged by experts, users and judges to be

## "The Best."

Machines can be seen in operation.

**Flat Rib Cuff Machines, improved cotton system.** **Double Rib Warp Looms.**
**Warp Knitting Machines.** **Lace Machines.** **Winders.**

## E. O. Spindler, Agent

**Room 515** **350 Broadway** **New York, N. Y.**

Higher Speed

## To Reduce Cost of Production by Increasing Output of Operators

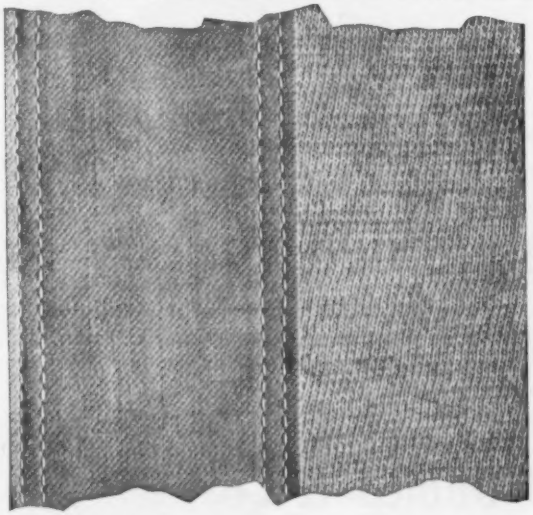
Higher Efficiency

USE

# Multiple Needle Machines

**For all Multiple Needle Operations, whether for Ornament or for Service, where it is desired to have a plurality of parallel rows of stitching, needles spaced as desired**

Yielding Bottom Presser Foot to be used where different thicknesses of Fabric are being Stitched Simultaneously



Special Fittings and Attachments now ready for Numerous Manifold Operations

Greater Simplicity

Style 16100 A-4 Needles-8-80-3 Gauge
Stitching Front Facings to Shirts
One Operation

Greater Durability

## Union Special Machine Company

BRANCHES
96 South St., Boston, Mass.
50 E. Main St., Amsterdam, N. Y.
51 Mohawk St., Cohoes, N. Y.
776 St. Catherine St., W., Montreal, Can.

HOME OFFICE AND WORKS
75 E. Kinzie St., Chicago, Ill.

GENERAL EASTERN OFFICE
47 Leonard St., New York City

BRANCHES
731 Arch St., Philadelphia, Pa.
806 Main St., Cincinnati, Ohio
1507 Olive St., St. Louis, Mo.
684 Mission St., San Francisco

## 30 to 60% INCREASE

With Climax High Speed Attachment for Circular Rib Knitting Machines.
Interchangable Hosiery Stamp, Stop Motion for Double Knee, Transfer Saving Cups.

**Flat Knitting Machines**

equipped with Power Motion, Automatic Take Up, Automatic Racking, etc., without removal.

**Climax Machine Co.**
1753 N. Howard Street, Phila., Pa.

ACTUAL SIZE

## A Reliable Tie

For tying all kinds of bundles and bales. Simple, quick, sure. Cannot untie, yet instantly fastened and unfastened. Secures yarn, cloth, underwear, etc., when carried from dep't to dep't. An inexpensive, durable time saver. Sample on request.

**The Reliable Tie Company**
Chadwicks, New York.

# Ribbed Hosiery and Underwear Makers

**You Can Double Your Present Production Without Adding New Machinery**

fill your orders in half the time now required—do in 6 months as much work as you now turn out in 12, by using the *new patented*

## Double Acting Attachment for Ribbers

It makes good Ribbers better; reduces the necessary space; is built on the interchangeable plan. We can change over WILDMAN, BRINTON, or SCOTT & WILLIAMS machines.

Secure this Double-Acting Attachment and increase your output 50%. Tests prove our claims.

Machines exhibited and sold by

## James Taylor

**Dealer in New and Second Hand Knitting Machinery**

**121 Arch Street, Philadelphia, Pa.**

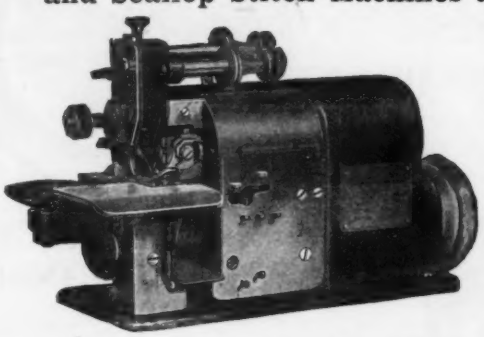
# The Merrow

**FAST**

**DURABLE**

**Light Running**

**High Speed Overseaming, Overedging and Scallop Stitch Machines are**



***OUR STYLE 60 MACHINE for Trimming and Overseaming in one Operation produces the strongest, best Seam and does it with the greatest economy.***

USE STYLE 18 for Horse Blankets. STYLE 17 or 22 for Bed Blankets. STYLE 35 B SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

*Send for Catalogue and Samples.*

## THE MERROW MACHINE CO. HARTFORD, CONN.

**Knickerbocker Building, Sixth and Arch Sts., Phila. 467 Broadway, cor. Grand St., N.Y. 237 Market St., Chicago, Ill.**

# EXCELSIOR KNITTING MACHINE MFG. CO.

Meadow and Washington Streets

ALLENTOWN, PENNA.

BUILDERS OF

**Full Automatic Knitters**

With or without **Transferring Device**

ALL SIZES AND GAUGES, 2 1-4 INCH TO 4 INCH

# Circular Knitting Machine

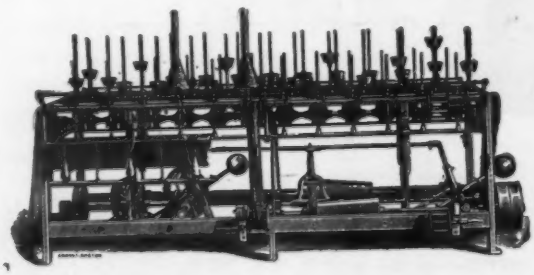
**Plain or Full Automatic**

with stop motions complete.

## 4 to 24 Feeds

**FOR RIBBED UNDERWEAR**

Automatic Racking and Striping Machines for Sweaters, Cardigans, Collarettes, Cuffs and Anklets.



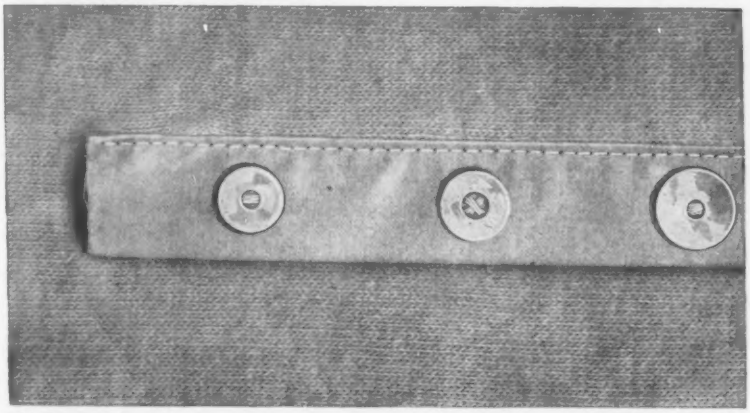
THE WELL KNOWN

**ABEL WINDERS, SEAMERS and LOOPERS**

ARE ALSO BUILT BY US

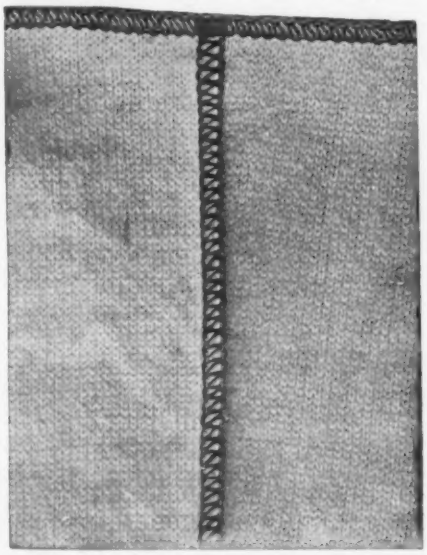
**LEIGHTON MACHINE CO., Manchester, N. H.**

# Best Machines for Work on Knit Goods



SINGER MACHINE No. 68-7 is used for ATTACHING EITHER 2 or 4 HOLE BUTTONS. It makes 11 cross and 3 tying stitches. The upper thread is drawn below and both ends cut off close to the material so that no ends of thread are left on the right side of the button.

SINGER MACHINE No. 62-18 has one needle and one looper. It is especially fitted for stitching button-stays or binding on Knit Underwear.



SINGER MACHINE No. 81-3, for Trimming and Overedging Knit Goods at One operation, can be fitted for either two or three threads, as desired. It does not stretch the goods while stitching and the thread is so laid as to make a flat and handsome elastic, chain-stitch seam.

SINGER MACHINE No. 52-30, is a three-needle, three hook, chain-stitch machine, fitted with top and bottom folders, for sewing (in one operation) straight bands on ladies' and children's pantalettes and drawers. It has an adjustable power ruffling mechanism for "fulling" in the body of the goods while stitching. This machine is being used by a large number of manufacturers who are obtaining an average production of about 100 dozen a day.

**Free Samples of Work Furnished on Application**

**Singer Sewing Machine Co.,** Room 3613 Singer Building, **New York**

# SPARTAN BELTING

*Why not send to-day for this belting booklet?*

GRATON & KNIGHT
M'F'G CO.
WORCESTER, MASS.

G K SPARTAN

# NYE & TREDICK CO.

**718-720 Cherry Street,**
**PHILADELPHIA, PA.**

## Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

**LATEST IMPROVEMENTS**

**QUALITY OF FABRICS AND PRODUCTION**

**UNEXCELLED**

**NYE & TREDICK CO.**

## "Nothing so Good as a Good Finish"

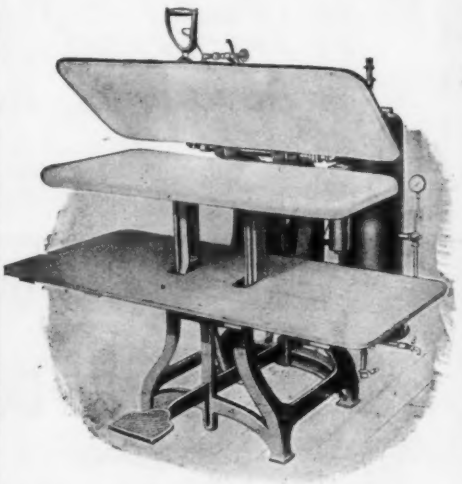
We are speaking of the finish on Knit Goods as produced by the

# Hoffman Press

Presses a full garment in one operation, leaving it smooth and of fine finish.

**Will not break buttons.**

Floor space required—4 feet square.



**The "Hoff-Man" F.**

*Write us for prices, particulars and illustrated catalogue*

## United States Hoffman Company

**229 Temple Street**

**SYRACUSE, N. Y.**

# The Invincible

## Full Automatic.

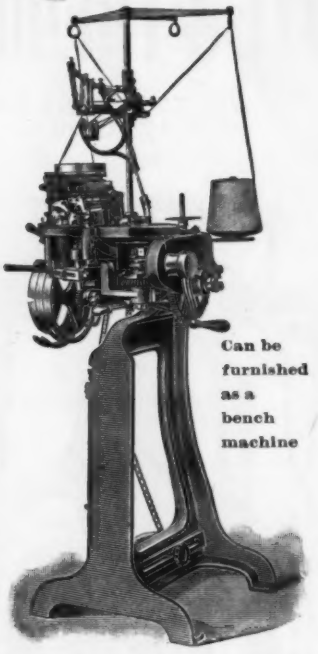
***"The KNITTER that KNITS"***

THE LARGEST PRODUCER OF PERFECT WORK.
SIMPLE, POSITIVE AND EASY TO OPERATE.

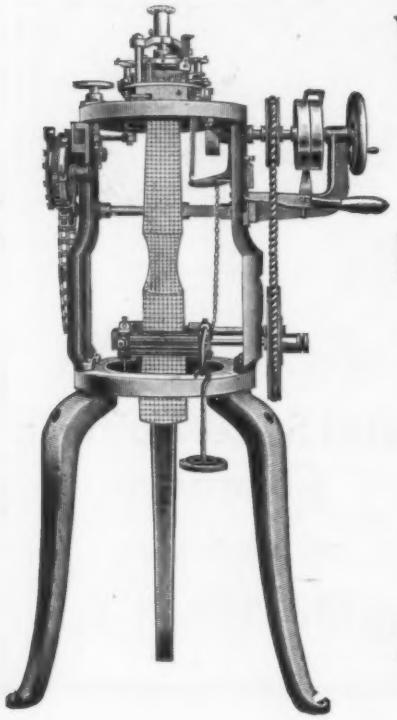
***E. JENCKES MFG. CO.***

***Pawtucket, R. I.***

PHILADELPHIA OFFICE,
101 North Sixth St.



**Can be furnished as a bench machine**



## You Will Increase Output
and
## Decrease Your Expenses
**By Using Our High Speed**
## Rib Knitting Machinery

Our latest models will cause fewer seconds, less breakage of needles, less jar, wear and tear, than machinery designed for lower speed.

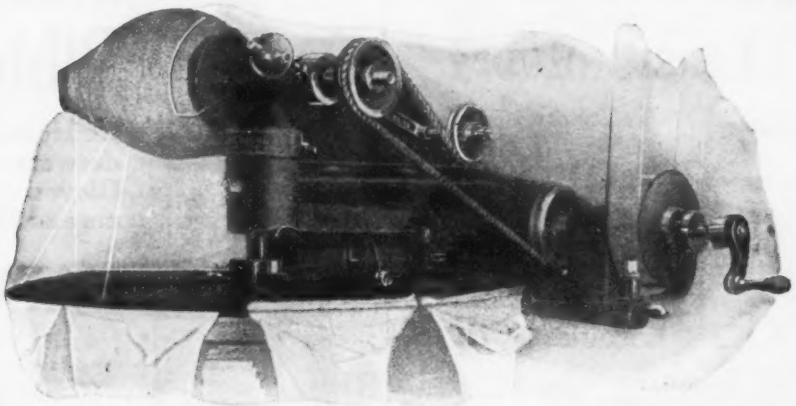
While effecting this saving, it decreases your production cost and so increases your profit.

The same economies result from the use of our Stripping and Designing Machines for Fancy Golf Stockings, Bathing Suits, Sweaters, Toques, Toboggan Caps, Skirts, etc.

## STAFFORD & HOLT,
LITTLE FALLS, N. Y.

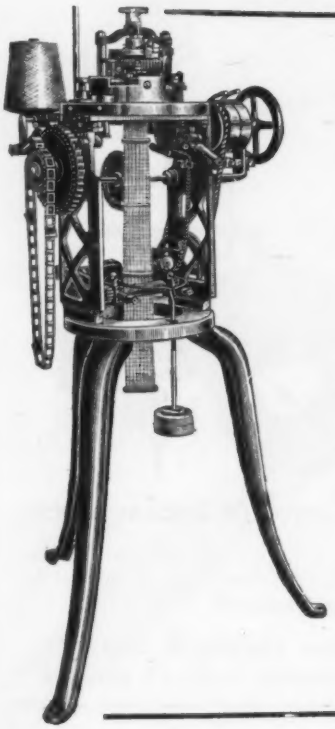
The "RAVLWIND" Saves Hosiery Manufacturers

**$2 to $3 a Week on Each Looping Machine**



It does away with hand raveling and winding, and is entirely automatic. Has increased the production as much as 40%. The "Ravlwind" folder gives other facts that will surprise you—send for it.

**Arguto Oilless Bearing Co., Wayne Junction, Phila., Pa.**



**Expense-Reducing**

# Knitting Machinery

FOR

**Hosiery, Underwear, Sweaters, Toques, etc.**

You can economize on production costs by using our

**Improved Automatic Ribber**

AND

**Full Automatic Knitter**

**Estimates Furnished for Complete Equipments**
**Send for Particulars.**

# H. Brinton Co.

**213-215 Race St., Philadelphia, Pa.**

# If You Want

## Largest Production For Least Money

Write

## Geo. D. Mayo Machine Co.

Laconia, N. H.

Latest
Simplest
Best

# MAYO'S

## New Full Automatic Knitter

PHILADELPHIA OFFICE
KNICKERBOCKER BLDG., COR. SIXTH AND ARCH STS.,
B. M. DENNEY, REPRESENTATIVE.

## GENERAL MACHINE WORKS

YORK, PA.

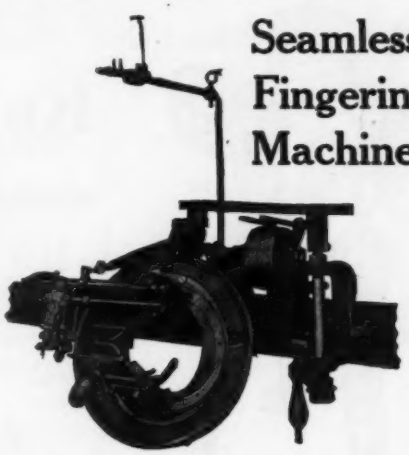
Manufacturers of

# Ribbers

**for Hosiery, Underwear and Gloves. Splicers and Sleevers**

We carry a large stock of needles and can supply your wants promptly. We are prepared to cut cylinders and dials promptly and accurately. We develop and market new ideas for any one. Your inquiries will be appreciated.

## Seamless Fingering Machine



**Knit Glove Manufacturers**

If you want to be up to date, ask us for particulars of this machine. Indorsed by leading manufacturers.

**James Leckie & Son,**

821 N 13th Street, Phila, Pa.

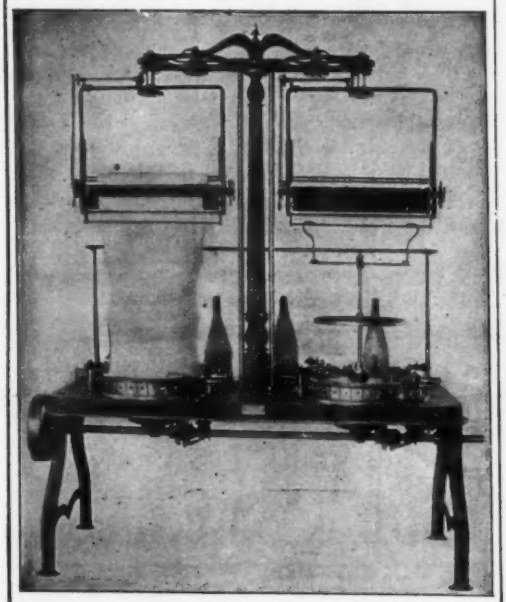
Established 1870. — Incorporated 1890.

## CRANE M'F'G. CO.

LAKEPORT, N. H.

Manufacturers of

**Spring and Latch Needle Machines for both rib and plain work,** producing a great variety of fabrics. Patent removable hardened Wing Burr Wheels.



Spring Needle Underwear Machine.

## CASE BROTHERS

INCORPORATED

Highland Park, Conn.

Manufacturers of

RAG PRESS BOARDS

Especially Adapted to

**Hot Pressing**

Also

**Fender Boards**

Medals awarded at Paris and Melbourne Expositions.

**Jacquard Cards**

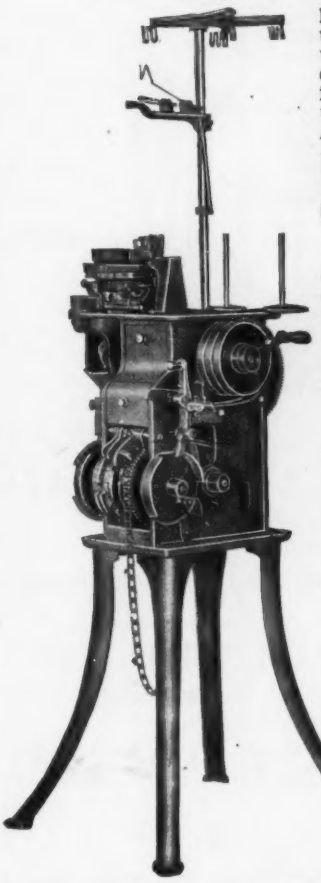
of all Grades for Fancy Weaving. Accurately Cut to Any Size.

## "THE BANNER"

## Hemphill's Latest

**A FULL AUTOMATIC MACHINE**

Specially adapted to



Manufacture Hose with Linen or Mercerized heel or toe.

Also for

**Plaited Goods**

and

**String Work**

**High Splice**

and

**Double Sole**

Largest Production

More Yarn Changes

Highest Speed

Simplest

Least Repairs

**Produces a Superior Quality of Work.**

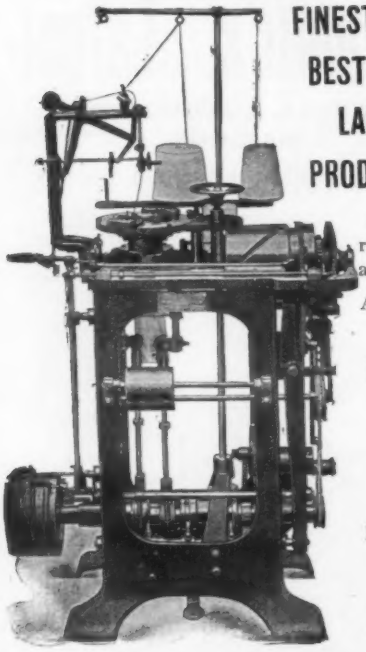
MANUFACTURED BY THE

## Hemphill Mfg. Co.

131 Clay Street, PAWTUCKET, R. I.

# "NATIONAL"

Stands for



FINEST GAUGES
BEST FABRIC
LARGEST
PRODUCT ON

Greatest Variety of Laces and Novelties.

Allautomatic.

Lowest Cost for Operating

Also

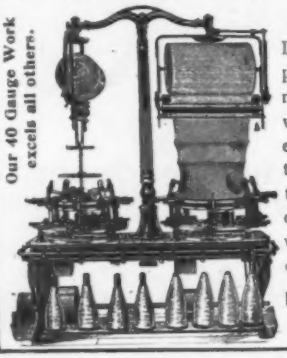
Rib Knitting Machinery, Overedge, Crochet and Shell Stitch.

## NATIONAL AUTOMATIC KNITTER CO.

1028 Susquehanna Avenue. PHILADELPHIA, PA.

## We are the Oldest Manufacturers

**of this Design of Spring Needle Knitting Machine in this Country**




**40 years' experience**

Do not be misled by people who became manufacturers in 1903 without any previous experience who are trying to represent that they are the oldest manufacturers. Investigate. Call and see our fine gauge work.

**Robt. W. Gormly & Co.**
Troy, N. Y.

# The New Boss Seamless Knitter

**Do you want the biggest production with the least menders, for the least money?** If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

*Send for prices and particulars.*

**THE BOSS KNITTING MACHINE WORKS,**
**Cor. Elm and Reed Sts., Reading, Pa.**

# "Acme" and "Hemphill"

SEAMLESS HOSIERY

## Knitting Machines

built by

## Mayo Knitting Machine & Needle Company

**Franklin, N. H.**

Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

**Manufacturers like our Latch Needles**

because we make a superior grade of needles.

**Philadelphia Office, Knickerbocker Bldg.**

## STANDARD MACHINES FOR HOSIERY MAKING

The STANDARD F, with attachments, can make any and all of these fabrics:

**Plain Goods**
**Plaited Work**
**Three Color Stripes**
**Tipped Heel and Toe**
**White Foot**
**Changed Heel and Toe**
**Garter Top**
**Loopers Slack Course**

**Most Stockings—Best Fabrics—Longest Life**

**Standard Machine Company**

OFFICE AND SHOW ROOMS

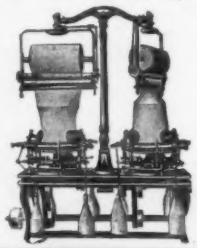
**330-340 North 12th St., Philadelphia**

**We Are the Oldest Manufacturers**
IN THE WESTERN HEMISPHERE
Of Circular Spring Needle Loop-Wheel Knitting Machinery.

## TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

Cross Question 123. How long have you been a manufacturer of knitting machines? Answer. I started in this business about the middle of May, 1900.



**Tompkins Knitter**

This design was adopted in 1875.
BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLY Was born, according to his testimony in the case above cited.

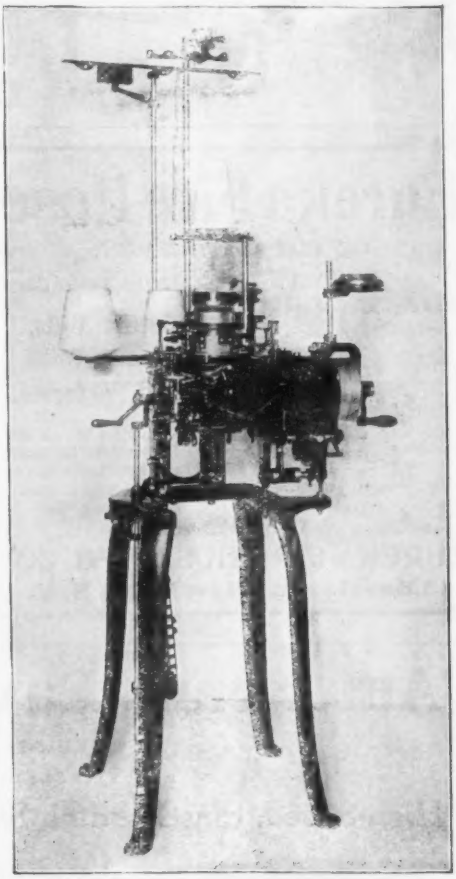
# Full Automatic Knitters

For Ladies', Half Hose and Footing, also for

**Ladies' Split Sole and Lace Hose**

Full Fashioned Legger and Heeler for Full Fashioned Hose.

Measure lengths like a Rib Frame.

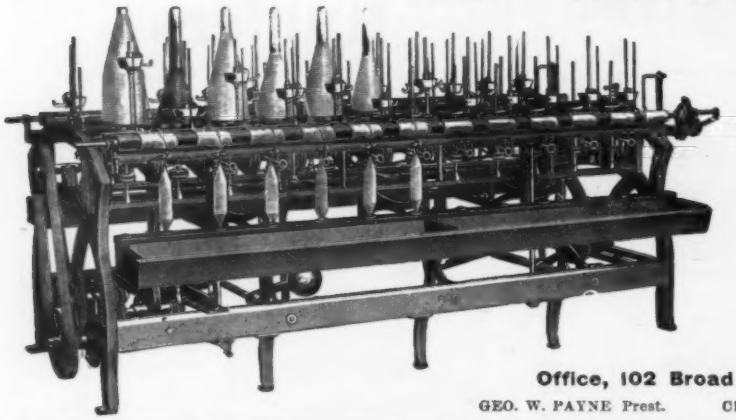


## Paxton & O'Neill

**537-41 North Third Street, Philadelphia.**

# OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers,
Wind for Cop, Skein or Bobbin.



Improved

## Upright Spoolers,

To Spool from Cop, Skein or Bobbin.

Doubling Spoolers for doubling 2, 3, or more ends into one.

Upright Quillers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler, Guides, Bolsters and Stops Made and Repaired at Short Notice.

## GEO. W. PAYNE CO.,

[Est. 1865. Inc. 1903.]

Office, 102 Broad Street, Pawtucket, R. I.

GEO. W. PAYNE Prest. CLINTON F. PAYNE, Sec'y. and Treas.

# Eureka Fire Hose

*THE BEST FIRE HOSE MADE.*

(Trade Mark.)

For use in

Cotton Mills, Woolen Mills and Factories.

Seamless Woven and Rubber lined EUREKA COTTON HOSE, has no equal. Send for circular and testimonials.

Awarded Gold Medal at the St. Louis Exposition, 1904.

EUREKA FIRE HOSE MFG. CO.

13 Barclay St., New York, N. Y.

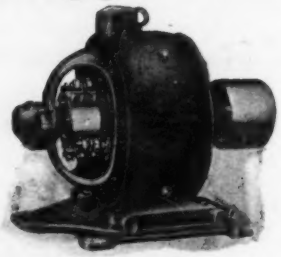
## Diehl Manufacturing Co.,

ELIZABETHPORT, N. J.

HIGH GRADE

# Electrical Apparatus

A line of Slow Speed Motors Especially Adapted to Textile Work

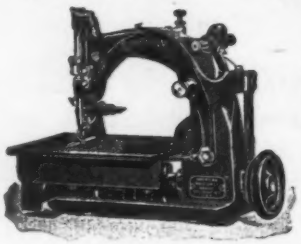


# American Raveller Company

PHILMONT, N. Y.

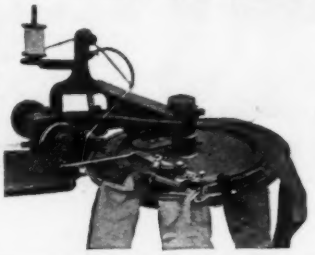
MANUFACTURERS AND PATENTEES OF

## High Speed, Elastic Stitch Sewing and Trimming Machines



Also ravelling machines for making knit underwear and hosiery full fashioned.

2 line and twin needle machines for fancy stitching.



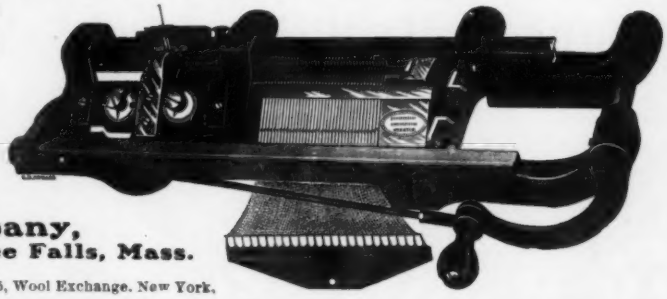
# The LAMB

**LEADER OF KNITTERS**

**Original and Still the Best.**

Most widely used; being operated in every civilized country in the world. For description, prices, etc., see catalogue.

**Circular Machines, Rib Top and Seaming Machines.**



**Lamb Knitting Machine Company,**

P. O. Box, 5888, **Chicopee Falls, Mass.**

J. E. WOODHEAD, 100 22d St., Chicago.

L. D. SANBORN, Room 505, Wool Exchange. New York.

THE

# DYEING and FINISHING MACHINE WORKS

| | |
|---|---|
| Automatic Singeing Machines | Steel Dry Boxes |
| Automatic Dyeing Machines | Cold Hosiery Presses |
| Vats Extractors | Bleaching Equipment for Hosiery |
| Chrome Machines | Oxidizing Machines |

WE ARE THE SOLE MANUFACTURERS

UNDER GEO. W. STEVENSON'S PATENTS

**Office 605 Colonial Building** **Reading, Penna.**

**We Lead in the Industry of Knitting Machines.**

**130,000 Knitting Machines in use all over the Universe**

# CLAES & FLENTJE

**Mühlhausen Thr., Germany**

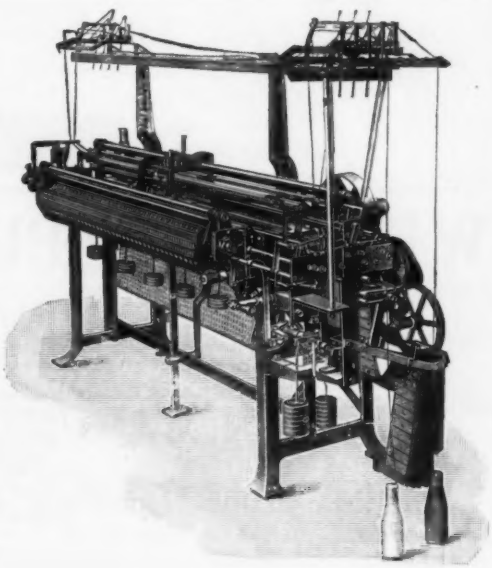
**(Largest Knitting Machine Factory in the World)**

Our knitting machines are far superior to any other in simplicity and construction. They give a higher production than any other on the market.

Machines for all kinds of plain and fancy knit goods by hand and full automatic by power.

The cut represents our newly patented fully automatic left and left power machine for producing fancy stitches that formerly could only be produced by hand.

For full particulars, needles and supplies for all kinds of knitting machines, write to



**Ainslie Knitting Machine Co.**

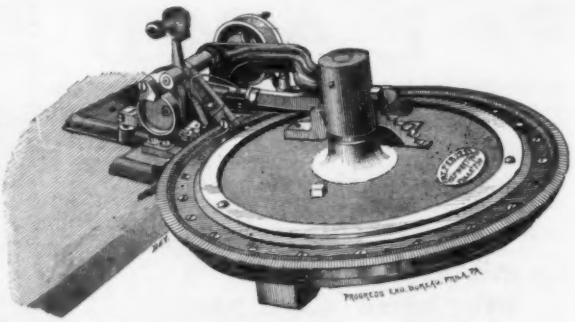
**281 Ainslie Street,** **Brooklyn, N. Y.**

HEPWORTH & CO.'S
Patent Single-Stitch
**Looping Machine**

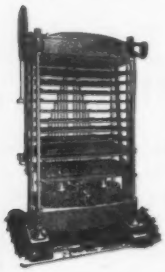
Needle working from the inside, avoiding the breaking of needles and points and picking up the metal.

Single and Double Stitch or Both Combined.

JOHN W. HEPWORTH & CO.,
N. W. Cor. Lehigh Ave. and Mascher St.
PHILADELPHIA.



**The CRAWFORD**



HOLLOW STEAM
**PLATE PRESS**
For Knit or Woolen Goods.
The most reliable machine of the kind on the market.
*PRESS PAPERS and FENDERS.*
**SPENCE & RIDEOUT,**
Successors to
J. J. CRAWFORD & SON,
NASHUA, N. H.
Established 1863.

**Patent Loopers**

Single, double and two thread Stitch.
with the
Patent Raised
or
Straight Points.
**Beattie Manufacturing Co.,**
Cohoes, N. Y.

Drying Forms.

BOARDS FOR FAST BLACK DYERS.
HOSIERY FINISHING BOARDS.
BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.
JOS T. PEARSON 1815-21 TAYLOR ST. KENSINGTON PHILA

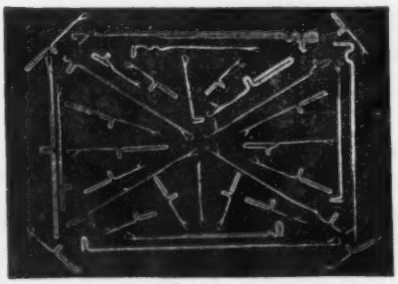
Hosiery Boards.

**WILLIAM C. BULL,** BENNINGTON, VERMONT.
MAKER OF
For Ladies', Gents' and Children's Goods.
Latest Styles.
Best Workmanship.
**Drying Form Boards**
OF EVERY VARIETY.

**MASON MANUFACTURING CO., Inc.**
Makers of
Machinery for Braiding and Finishing Sash Cord.
15 1-2 Chardon Street BOSTON, MASS.

TRY OUR "SUPERIOR", OR SUNKEN RIVET-HEAD NEEDLES

They will save you money.



Dodge Needle Co., Manchester, N. H.

WM. COREY CO.,

Manufacturers of Knitting Machine

Latch Needles

MANCHESTER, N. H.

EXCELSIOR NEEDLES.

The best Hosiery Needles in the market.

Manufactured by

WARDWELL NEEDLE CO., Lakeport, N. H.

WM. BREEDON'S SON,

MANUFACTURERS OF

Spring Knitting Needles

AND BURR BLADES OF ALL KINDS.

AMSTERDAM, - N. Y.

Reels for Cotton WOOLEN AND WORSTED

Patented Hosiery Winders, Cop Winders and Spoolers.

LINDSAY, HYDE & CO.,

2124 to 2130 East York St., PHILADELPHIA, PA.

Standard Latch Needles

MANUFACTURED BY

EXCELSIOR NEEDLE CO.,

TORRINGTON, CONN.

The Largest Manufacturers of Machine Needles in the World.

STANDARD

TRADE MARK.

Longer Wear. Better Work.

Less Mending. Fewer Seconds.

Have you tried our

Patent Milled Rivet?

Agents

C. B. Barker & Co., Ltd., 42 W. 15th St., New York.
Manufacturers' Supplies Co 418 Arch St., Phila.
C. Shawl, 414 Polk St. San Francisco, Cal.
J. C. Strittmatter, 2a Calle de San Francisco No. 9, City of Mexico, Mexico.

L. T. IVES CO.

Manufacturers of all kinds of

SPRING KNITTING NEEDLES

NEW BRUNSWICK, N. J.

KEYSTONE LATCH NEEDLE CO.

JOHN C. EGLY, MGR.

MANUFACTURERS OF

Patent and Regular Latch Needles

Needles for all makes of Knitters and Ribbers.
Keystone Spring Bottom Needles for all makes of Knitting Machines always in stock for immediate delivery.
Special Needles made to order.

543 W. Lehigh Avenue, Philadelphia, Pa.

TEXTILE MACHINE WORKS

THUN & JANSSEN, READING, PA.

Manfrs of BRAIDING MACHINES

for making Dress Trimming Braids, Cotton Tapes, Underwear Braids, Shoe Laces, Spindle Banding, etc. Winders, Doublers. Measuring Machines, Reelers, Singeing and Finishing Machinery. Special Machinery.

The Continental Latch Needle Company.

Manufacturers of the BEST GERMAN NEEDLE on the Market.

RIVETS GUARANTEED. Samples on application. SPRING NEEDLES A SPECIALTY.

120-122 LIBERTY STREET, - - - - - - - - - NEW YORK.

# McCormick Turbines

both Cylinder and Wicket Gate, giving **ENORMOUS** power are used in hundreds of textile mills throughout the world.

**We make a specialty of designing turbines to meet the requirements of the public.**

**We build Francis turbines in spiral flumes to operate under high heads.**

**42000 H. P.** in vertical shaft turbines now in course of construction to operate 10 umbrella type generators in power plant of Chattanooga & Tennessee Power Co.

**Chicago Office, 644 Am. Trust Bldg.**
**Boston Office, 176 Federal St.**

**S. MORGAN SMITH COMPANY, York, Pa., U.S.A.**

## GEYSER WATER HEATER

U. S. Pat. 873,209

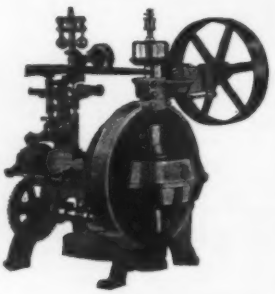
To attach to end of steam pipe for heating liquids in tanks or vats. Modifies that disagreeable noise caused by the direct introduction of a steam jet and raises the liquid to the required temperature in about 70% of time required by latter. By its thorough circulation it distributes an even temperature throughout the tank. Price list upon application.

**C. G. SARGENT'S SONS CORPOR., Graniteville, Mass.**

## Soft Clear Water.

We-Fu-Go and Scaife Water Softening Plants, and Scaife Water Filters can be seen in actual operation in Textile Plants in any part of the U. S. Apparatus designed to suit each special case, and we guarantee results. Write for Illustrated Catalogue.

**WM. B. SCAIFE & SONS CO., Pittsburgh, Pa.**

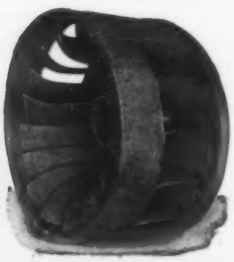


## Water Wheel Governors

OUR compensating type more fully meets the needs of Textile Mills than any other. This is due to its being the only successful quick acting, mechanical, governor and its perfect control of large as well as small changes. 1500 of this type in use in mills and electric power plants.

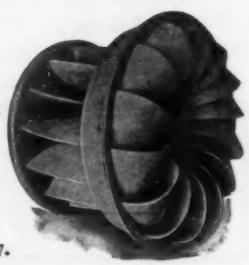
**Woodward Governor Co., Rockford, Ill.**

# HUNT-McCORMICK WATER TURBINES



**CYLINDER or BALANCE GATE CASING**

Highest Efficiency, Greater Power,
Easy and Quick Regulation,
Steady Motion, Durability.



## RODNEY HUNT MACHINE CO.

**ORANGE, MASS.**

BRANCH OFFICE: 70 Kilby St., Boston, Mass.

**See our Woolen Machinery advertisement on page 47.**

"SIROCCO"
Trade Mark

Smallest size here illustrated delivers over 5,000 cubic feet per hour on less than ¼ the current required by a 16 C. P. Lamp.
"Sirocco" Blowers Save Power

FOR POSITIVE DISTRIBUTION

IN CONNECTION WITH PORTABLE OR SEMI-PORTABLE

HUMIDIFIERS

— USE —

"SIROCCO" FANS

AMERICAN BLOWER CO., Detroit

Southern Sales—Empire Bldg., ATLANTA
Eastern Sales—141 Broadway, NEW YORK

SALEM ELEVATOR WORKS

SALEM, MASS.

ELEVATORS

ESPECIALLY ADAPTED FOR MILL USE.

*SEND FOR ILLUSTRATED CATALOGUE AND ESTIMATE.*

JACKSON BELT LACER

*Broad or narrow, heavy or light;*
*It's all the same, we lace them tight.*

**A Jackson Belt Lacer** is the acme of time saving perfection because **one** man can carry the Lacer to the work and Lace the belt right on the spot in less time than it takes to tell.

AND after the joint is made, it stays; again you save time—by never having to repair that same joint.

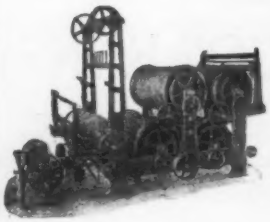
Just because it's strong, don't think it's stiff; it's as flexible and flat as the rest of the belt.

**Birdsboro Steel Foundry and Machine Co.**
**Birdsboro, Pennsylvania**

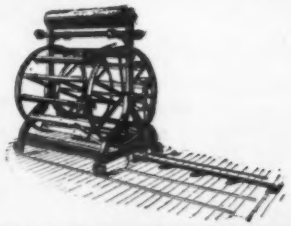
# SMITH & FURBUSH MACHINE CO.,

Hancock & Somerset Sts. Philadelphia, Pa.

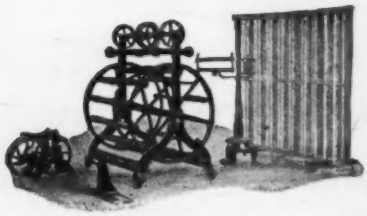
WARPING MACHINERY. CIRCULAR No. 12A



Warp Dresser. No. 124A

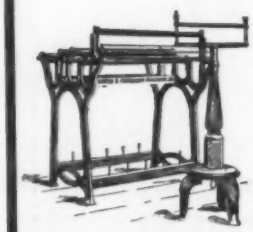


Universal Sectional Pinless Warp Mill
No. 123.

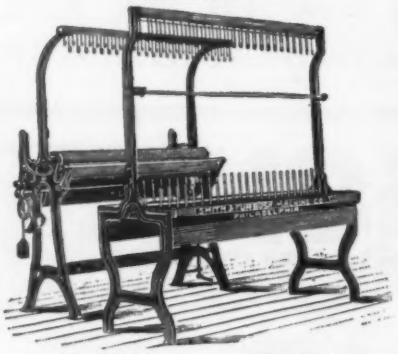


No. 119. Beamer. | No. 120. Section Warp Mill. | No. 121. Heck Stand with Plain Reed and Guide Reed. | No. 122. Creel.

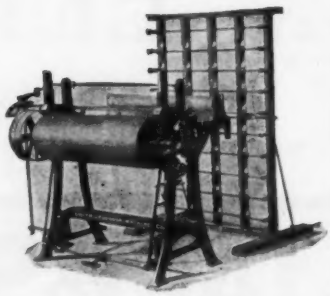
No. 116.
Dreser Spooler with Bobbin Frame Attached.



No. 125. Reed Stand. No. 126. Heck Stand.



No. 118. Dresser Spooler. No. 118½ Separate Bobbin Box.



No. 117. Dresser. Spooler. No. 117½. Creel.

**Our line of WARPING MACHINERY is very complete.**

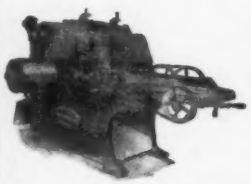
*Write for Circular No. 12A*

We invite Visitors to Philadelphia, Pa., to see our Machinery in Operation.

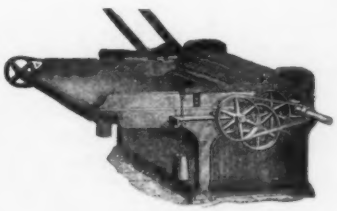
# SMITH & FURBUSH MACHINE CO.,

Hancock & Somerset Sts. Philadelphia, Pa.

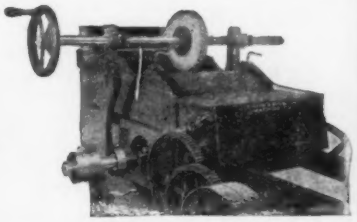
PICKERS & SHREDDERS. CIRCULAR No. 13A



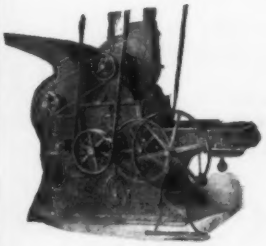
Rag or Shoddy Picker.



Lumper.

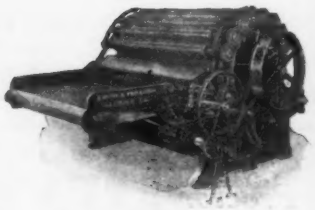


Picker Cylinder Grinder.

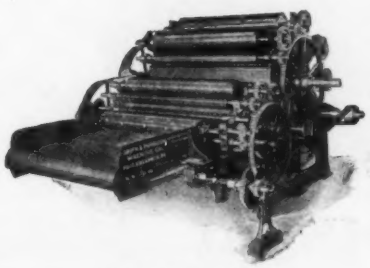


Bur Picker.

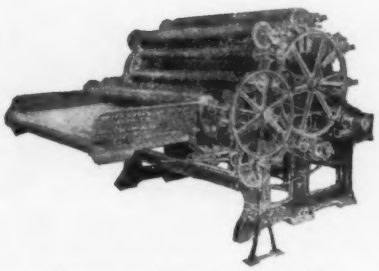
Wool or Mixing Picker.



Fearnaught Picker.



Rag Shredder.



Carpet and Burlap Shredder.

Our **Pickers and Shredders** are giving thorough satisfaction in preparing many different kinds of stock.

***Write for Circular No. 13A.***

We invite Visitors to Philadelphia, Pa., to see our Machinery in Operation.

# SMITH & FURBUSH MACHINE CO.,

Hancock & Somerset Sts. Philadelphia, Pa.

MANUFACTURERS OF

**PICKERS** { Lumpers — Rag and Carpet Shredders, Rag, Burr, Wool and Fearnaught Pickers.

**WILLOW** { Square Box and Cone Willows and Dusters.

**GARNET MACHINES** { For carding cotton and woolen waste clippings, etc., also for manufacturing cotton batting or felts.

**FEEDS** { Self feeds for wool, worsted or cotton, also Camel Backs, Blamires, and Apperleys for cards.

**METALLIC BREASTS** { For Cards and Garnet Machines, Burring Machines and self-stripping feed rolls.

**CARDS** { Woolen, Worsted, Cotton Waste and Shoddy Cards.

**MULES** { Heavy and Durable, For Wool and Waste Yarn.

**TWISTERS** { Plain and Fancy Twisters for Flake Loop or Bourette Yarn.

**BOBBIN WINDER** { Automatic Jack Bobbin Builder; Adjustable Creel for different length spools.

**WARPING MACHINERY** { Copper Cylinder Warp Dressers with single and double size pans —Beamers—section warp mills. Warp Mills, Dresser Spoolers for worsted or wool.

**GRINDERS** { Floor, Traverse and Portable Grinders for Cards, Garnetts or Rag Pickers.

Machinery for manufacturing Gunny Bagging from old Gunny Bagging.

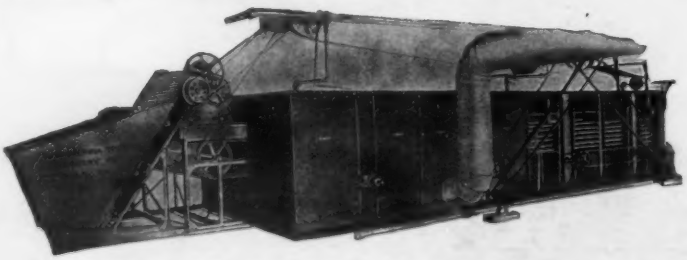
**TURNING RESTS — CARD STRETCHERS — FILLET WINDERS AND CLEANING FRAMES**

Special Circulars furnished for each Machine.

LOOK ON THE OTHER SIDE OF THIS PAGE.



*Proctor* **Drying Machines** *Fire Proof*



Yarn Dryers
Scouring Machines
Fans

**BUILT of METAL**

Stock Dryers
Carbonizers
Hosiery Dryers

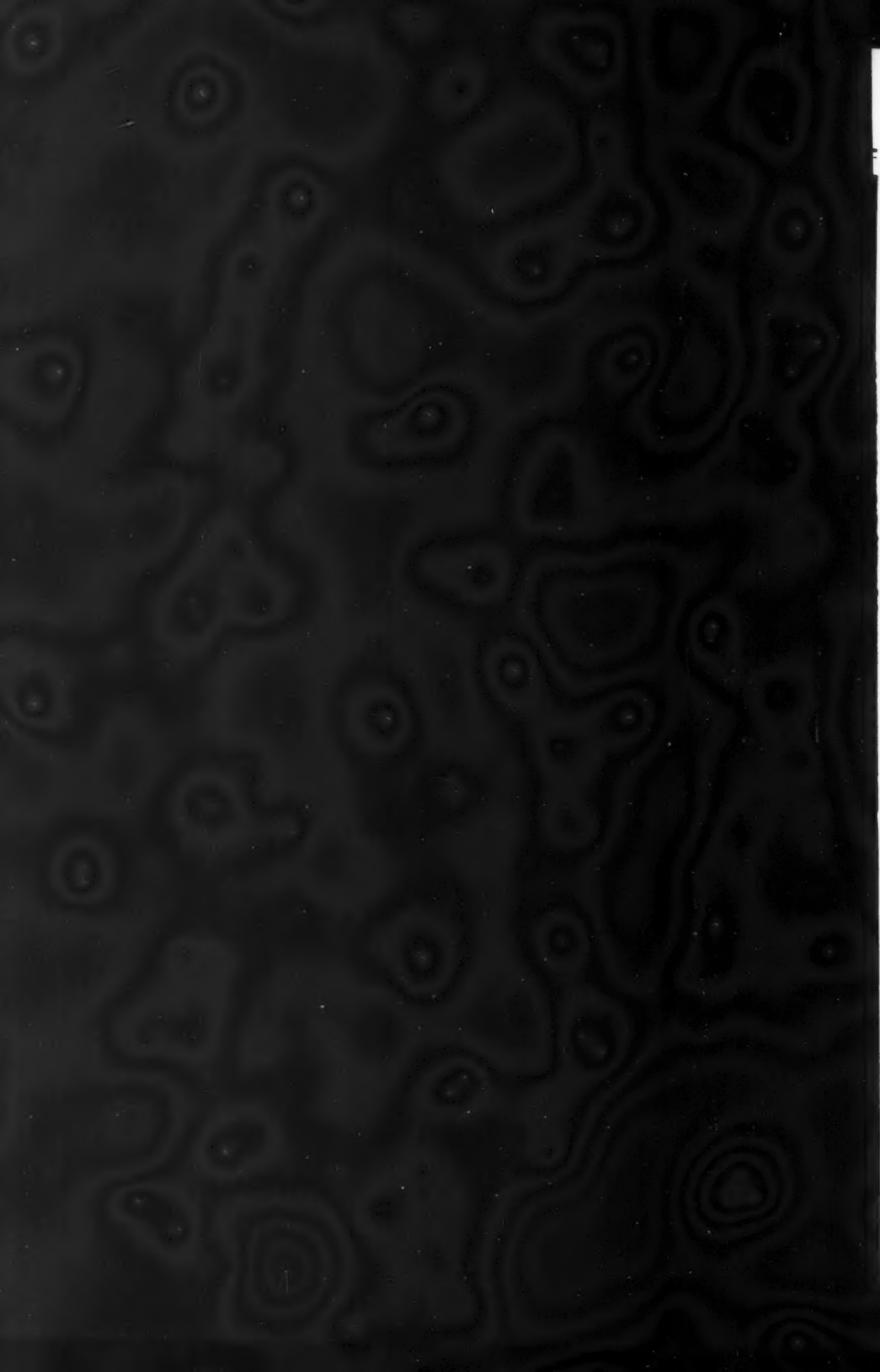
**Apron troubles overcome by the Interlocking Chain Conveyor**

**It needs no adjustment**

Conveyor Separate from Dryer

**Philadelphia Textile Machinery Company**

Hancock and Somerset Streets PHILADELPHIA, PA.



# CELL DRIER MACHINE CO.

TAUNTON, MASS.

BOSTON OFFICE, STONE AND WEBSTER BUILDING, 147 MILK ST.

## To Finishers

Of Worsted and Woolen Goods,

We can Double the production

Of your Tenter frames

At a relatively Small expense,

By the use of Cell Driers.

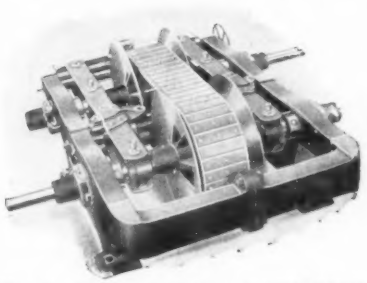
Are you interested?

Write for information.

---

THE MILL EQUIPPED WITH

## "Reeves" Variable Speed Transmission



for regulating the speed of Slashers, Singers, Drying Cylinders, CELL DRIERS, Printing and Dyeing Machines, Steam Agers, Tenter Frames, Dampeners, etc., produces the best and most reliable results. *Scrap* your Cones.

Enquire of those who are using them.

**Reeves Pulley Company,**
Columbus, Indiana.

New England Agents,
CELL DRIER MACHINE COMPANY,
Taunton and 147 Milk St., Boston, Mass.

New York Representatives, PATTERSON, GOTTFRIED & HUNTER, 146-150 Centre Street.

# Foster Machine Company

Builders of

## Cone and Tube Winders

Office and Works at

**Westfield, - Massachusetts**

## Lombard Adjustable Arch for Worsted Work

With this arch any Workers or Strippers and all top work can be spaced and changed at will. A woolen card can quickly and easily be made ready for Worsted Work, without removing the arch sides—and vice versa. Perfect adjustment and rigidity guaranteed.

## Lombard Metallic Breasts

are dividend payers because of their lasting quality. They are made of the finest steel tubing, clothed with the best metallic wire and can easily be re clothed without injury to the shell.

Remember also that **Rae's New "Century Cards"** are the best. Ask us why.

**The Lombard Machine Co.**

Worcester, Mass.

## HUMIDITY

is the presence of water in the air as vapor, not as spray. The Bell Humidifier provides ample surfaces from which water is evaporated, not thrown, into the air of the mill. Result, increased output.

*Catalogue upon request*

**The Griscom-Spencer Co.**

90 West St., New York

## Walworth Manufacturing Co.,

HIGH PRESSURE

# VALVES AND FITTINGS

"Walmanco" Pipe Flanges

"Never Stick" Blow-off Cocks, Mill Supplies.

GENERAL OFFICES:

**128 FEDERAL STREET, BOSTON, MASS.**

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